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MAY 2007

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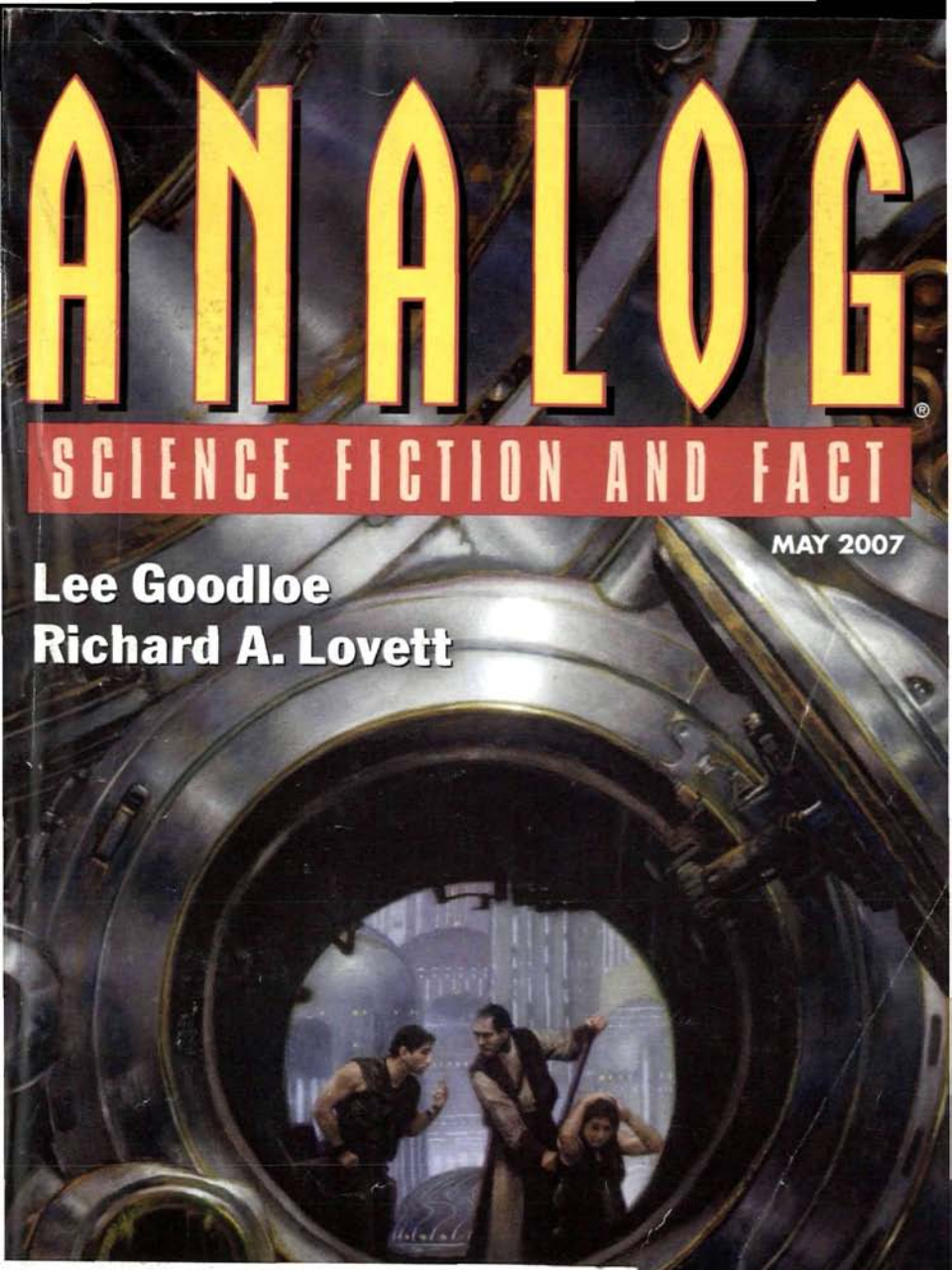

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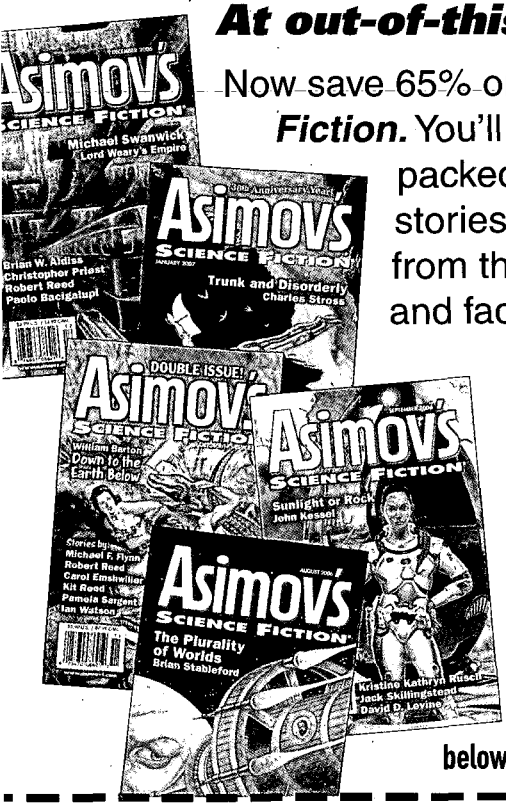

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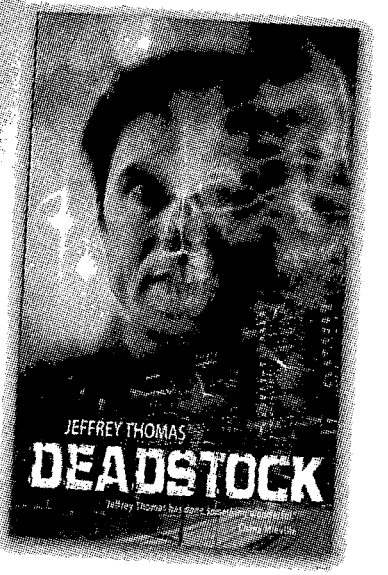

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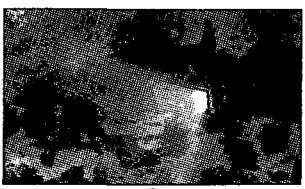

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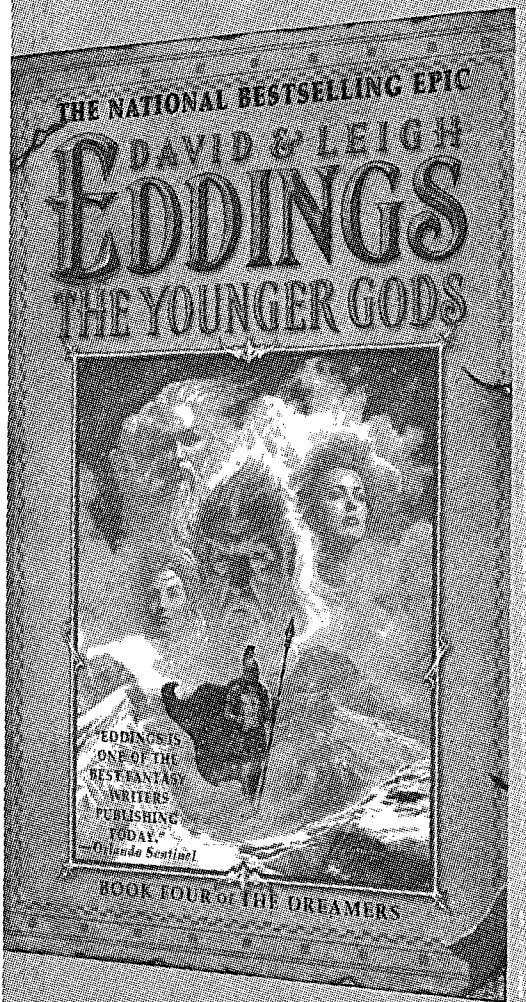
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EDITORIAL Stanley Schmidt

METASCIENCE AND MAIL FRAUD

In my last column here I mentioned my recent stint as a volunteer in a field study of invasive plants—a scientific study with botany and ecology as its subjects, with data being collected by volunteers who were not professional botanists or ecologists. A secondary goal of the study was to evaluate the effectiveness of that method of collecting information. The first goal is science, the study of the natural world; the second is "metascience," the study of science itself and how it is done.

There was a third purpose, too: to try to increase understanding of what science is and what it does among people who came to the study without much knowledge of such things. Some people volunteered not because of their own scientific backgrounds, but simply because they thought it sounded like a good way to make a useful contribution to the protection of something they loved while doing something they enjoyed. The organizers of the study hoped that by getting involved in *doing* some science, some nonscientists might develop a better feel for what it is and why it's worthwhile. And they, in turn, might spread some of their newfound understanding and enthusiasm to still others.

That, too, is a kind of metascience. Why is it important? Because a great many of the decisions all of us increasingly have to make—as voters and as consumers, for instance—depend on having at least a basic understanding of scientific philosophy, principles, and in some cases specific details. If you're voting on such matters as energy policies and conservation, you can't expect to be able to make reasonable choices unless you have some understanding of how those things work.

Furthermore, in many cases we're going to need *better* understanding than we yet have of these subjects. That means we need more research. And that means we need more researchers and more funding for research. We need policy makers (and at some level that includes voters and corporate stockholders) who see the value of supporting research—even the basic kind that does not yet have obvious practical applications. We need young people who are interested enough in science and technology to pursue careers in those fields. That means we need parents and educators who understand the workings and importance of those endeavors well enough to inspire interest in them among those they're raising and teaching.

They're not likely to do that unless they have such understanding and enthusiasm themselves.

And there are plenty of obstacles to peoples' getting a realistic idea of what science and the people who do it are like. The vast majority of portrayals of scientists and engineers in movies, television, and other popular media are grossly unrealistic stereotypes and caricatures. (We could use a lot more things like the Kristi Lang stories of Michael Shara and Jack McDevitt, which ad-

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mirably convey all the fun and boredom and frustration and occasional excitement of real science.)

I've had at least one humanities teacher who said in front of her classes that she didn't like science because it was "so cut-and-dried." That made me cringe; whenever I hear anyone say anything like that, it tells me quite clearly that either they've never tried to do any science, or if they did, they didn't understand what was going on.

And then there are the highly visible things arriving in our mailboxes all too often, masquerading as science and quite possibly turning off potential scientists and science supporters who take them at face value. This problem has been around a long time; we published a "Brass Tacks" letter about it eighteen years ago, and I've noticed no diminution of the practice since. In fact, I think we may still be seeing some of the same old offenders, with little or no change in all that time.

I refer to the solicitations that all of us get that come in envelopes with portentous statements on the outside like, "You have been selected to participate in an important national survey. . . ." But when you open the envelope, what you find inside is a list of ten or so questions, all or most of them blatantly loaded and leading, like, "Do you think we need legislation to curtail the raping and pillaging of the environment by industrialists run amok?" The list culminates in one like, "Would you pledge as little as $50 to help stop these abuses? If so, please make your check payable to . . ."

In other words, the "important national survey" is nothing of the kind. It's a bald-faced solicitation for money, shamelessly couched in blatantly manipulative terms that superficially look like an actual survey, but are actually calculated to shame the reader into professing agreement with the sender and coughing up a contribution. The teaser on the envelope is, purely and simply, a lie.

Since these things come in the mail, and use deliberate misrepresentation in an effort to get money from people, it's awfully tempting to call them "mail fraud." I hasten to add that I suspect at least most of them don't meet the strict legal definition of that term, so I'm not actually accusing anybody of literal criminality. I'll even grant that you might say that my inclusion of that phrase in my title is itself a somewhat similar bit of trickery to get people's attention. But I respectfully submit that it's at least less egregious than the practice I'm describing.

These phony "surveys" are the sort of thing we've come to expect in campaign mailings from politicians, most of whom we'll vote against if we can find a less unpalatable alternative. But many of these things come from scientific, humanitarian, and environmental organizations that actually promote admirable

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goals that many of us would find well worth supporting.

What's going on here? Why are these high-minded organizations using such underhanded tactics, and why have they continued to do it for so long?

Well, presumably because they work, or at least those who evaluate such things for the organizations in question have managed to convince them that they work. Personally, I'm not so sure. Maybe they do persuade some people to send money; but I'm quite sure they also persuade others *not* to send money who probably would if they were approached with a modicum of respect for their intelligence. When that happens, it's surely counterproductive for the organization trying to gain support, and I'm not at all sure that that effect isn't larger than the other.

But the practice of misrepresenting "research" may be counterproductive in another sense, too, subtler but in the long run perhaps more important. I can easily imagine some people—young ones deciding what to do with their lives, for example—looking at these "surveys" and actually believing that they *are* examples of how science is done.

And deciding, with disgust, that they want no part of it.

In other words, these things contribute to giving the public an even more distorted idea of what research is—and it's plenty distorted already. We need to give people a *clearer* idea of what science is, how it's done, and why it matters.

So why are reputable organizations like _____, _____, and _____ (you can fill in the blanks from your own experience), which could be doing that, instead using tactics that repel the very people they want and need to attract? An obvious part of the answer is that the people who set the core policies for such organizations seldom write the promotional and fundraising materials they use. They hire others to do it for them, people or other organizations that specialize in such things.

But one might think, or at least hope, that those who do set the organization's main goals and directions would pay closer attention to what's being said in their names, and try to exert some control over it where such is clearly needed.

After all, there's more at stake than next year's budget. ■

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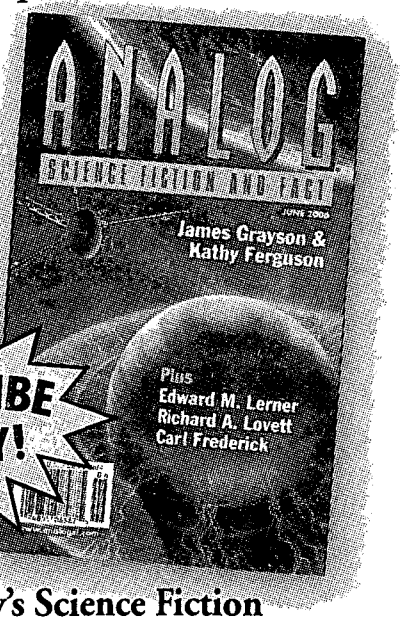

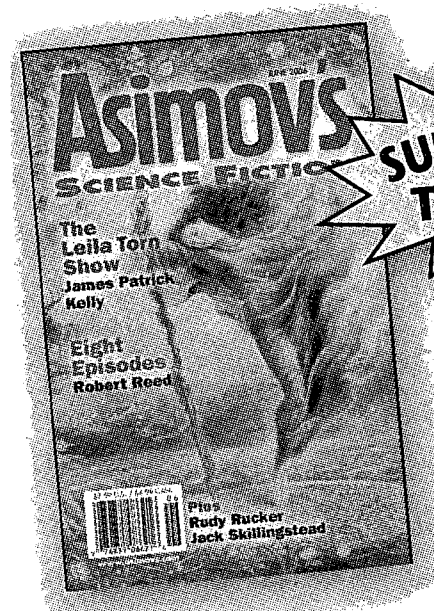

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Damned If You Do...

Lee Goodloe

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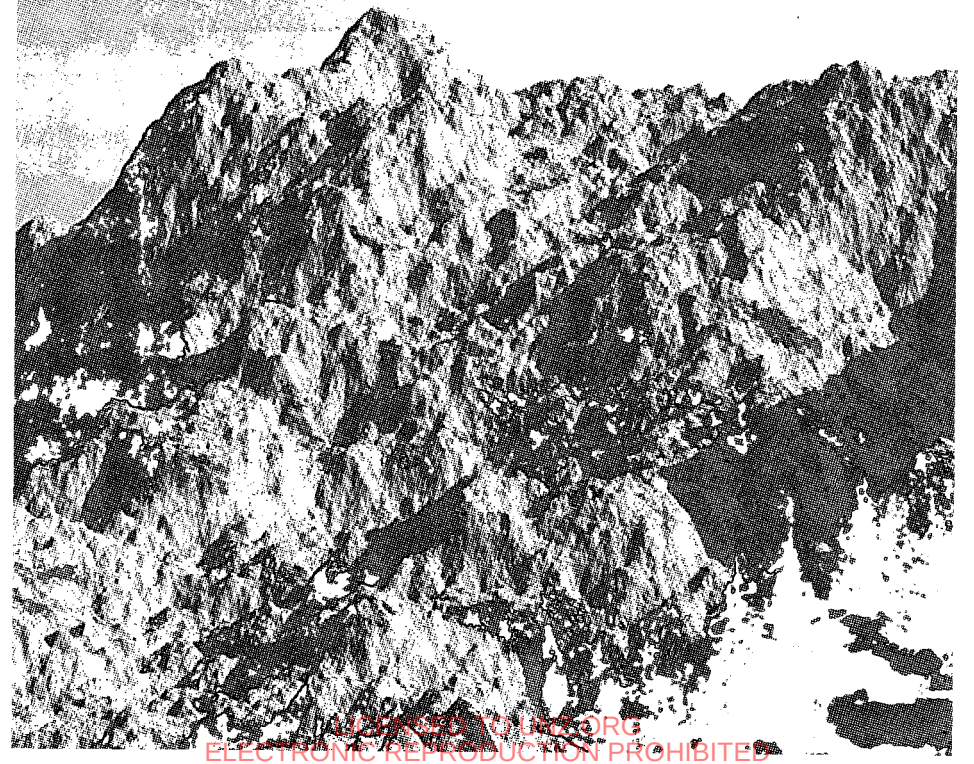

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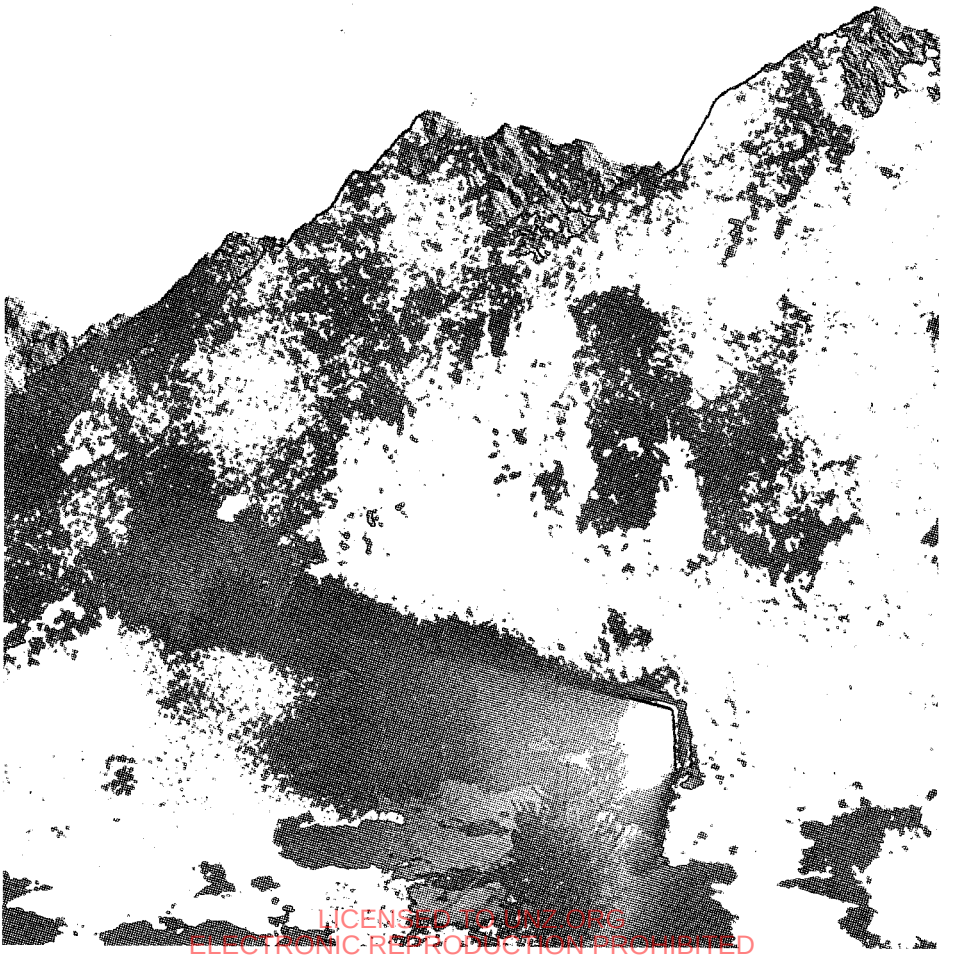
Some sleeping dogs have friends. . . .



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Chad Gutierrez latched the heels down on his skis. The first couple of runs had been everything he'd hoped for: untracked powder, just enough trees to make it interesting (and to stabilize the slope), and stunning views of the high country.

He now wanted to try a different area, so he'd had Charlie Jones, the chopper pilot, drop him off farther down the ridge.

He stood in snow, among which krummholz and the occasional gnarled bristlecone pine poked out, and looked down a steep open slope. Chad regarded it with trepidation: it looked both steeper and less stable than it had from the helicopter, exactly the sort of place where avalanches were likely. There was no avalanche control in the backcountry, as the boilerplate for the heliskiing operation reminded customers.

Well. He'd try to sneak down the right side, avoiding the middle of the slope. He went through the last checkout of his equipment: avalanche radiobeacon (which doubled as the locator for his pick-up point) turned on; helmet cam on and running; backup video also on and running . . . all set. Then Chad checked the fastening on his helmet strap one last time, flexed his legs experimentally, and dropped onto the slope.

And immediately knew he was in trouble, as the snow under him began to slide with his weight. Chad promptly turned left, trying to get away from the avalanche he'd triggered, but the snow continued to fail as soon as his weight came on it. He ended up frantically skiing diagonally across the slope to stay ahead of the avalanche that formed as soon as he touched the snow. He felt a moment of relief as he reached the ridgecrest that defined the left edge of the slope—and then felt himself fall as the cornice he'd unknowingly topped collapsed under him, dropping him on the other side of the ridge. Chad in a panic threw himself forward, leaning out over his skis, trying to get beyond the collapse to the slope below—and hoping desperately there was snow on that slope.

There was. He hit hard, but managed to stay on his skis, feeling the edges dig in as he turned his impromptu jump into a traverse across the steep slope where he'd landed. Finally he angled his skis uphill to stop.

His heart was thundering and his breath gasping. *Much closer call than I like,* Chad thought. Avalanche was every backcountry snow buff's nightmare—either swept away to be dashed to pieces, or else entombed in unyielding snow to suffocate. And there's no way Charlie would get back in time for a rescue before he perished miserably. Chad laughed nervously in reaction. If he'd had Charlie taking a video from the chopper he could've sold that sequence as an extreme-skiing movie. Now his knees were trembling to the point he had trouble keeping his balance. *Get hold of yourself,* he admonished himself. *If I fall again here I* am *done for!* He wished he could sit down for a minute, but there was no way—not standing sideways on skis on a steep snow slope. Chad forced himself to take deep breaths, trying to will calmness. Maybe it was working. . . .

He was now committed to descending this canyon. He looked below: craggy, with cliffs directly below him, it was a lot rockier overall than where he'd intended to go. *South-facing slope . . . it's more melted out.* But as he looked, he saw a possible route off to the left. It was serious double-diamond stuff, a narrow and extremely steep slot between rocky crags. Not a lot of margin, there. He would have to drop straight through the slot, then quickly go into a turn to kill speed as the slope opened out below, trying to beware of rocks all the while. *You could break your neck like this. . . .*

Not the right attitude. Concentrate! You *can* do this. He skied over to the

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left, lined up, and started down, kicking himself off with a sharp turn to the right.

The acceleration was ferocious. Chad tried to ignore his rapidly increasing speed, concentrating on keeping his skis lined up on the meager strip of snow ahead of him. It seemed to take forever to widen out into a slope. At that point Chad gingerly began a turn to the right, leaning forward slightly onto the tip of his left ski. It was working—he felt himself start to slow—but then something grabbed that ski. The sudden deceleration spun him around and he felt himself go over backwards, sliding, tumbling, rolling down the slope. He felt one ski pop off as the breakaway binding functioned just as it was supposed to; then he felt the other one pop off, too. Chad threw his body around frantically, trying to get his feet pointed downhill, trying to face the slope so he could dig his toes in, thinking of the sharp talus he'd seen below. He had to *stop.* Somehow he still held one ski pole. He grabbed it behind its basket with his other hand and pushed the tip down into the snow, like an old stick plow. It left a deep groove in the snow behind as his momentum dragged it along, but it slowed him down.

Finally, he stopped. Shaken, Chad lay in the snow for a minute, mentally checking for injuries before he tried to move. He was *cold,* too—his parka had scraped up snow like a bulldozer as he'd slid, but no doubt had helped him slow down as it did so. He blinked experimentally—things seemed preternaturally vivid for a minute, the way they do if you've had your eyes closed and open them up suddenly—but he didn't seem to have any more serious visual effects. Probably no concussion, then.

At length Chad stood up gingerly. He unzipped the parka and shook out the snow, and looked back up the slope. Thank God there'd been a soft powder layer that he could dig into. He never could have stopped on glaze.

He could also see his skis and missing pole—above him. *Way* above him. At least the ski brakes had worked—the skis hadn't sailed off to the bottom of the canyon—but now he had to climb back up to retrieve them. Chad sighed and started trudging back up, kicking out steps in the snow with the clumsy ski boots, using the one pole for a walking stick. Once back on his skis, standing sideways, Chad considered his route.

It looked easier from here, which was good, especially after that fall. More gentle slopes, well covered with snow and spattered with a few piñons, beckoned off to his right. He could traverse that way and eventually drop into the canyon. At which point he'd have to go all the way down out the canyon mouth, so Charlie'd have room to set down the chopper. Hopefully he could ski at least part of the way out.

First traversing laterally, Chad then turned, feeling the edges bite the snow after the initial acceleration. He dodged a rock, nearly hidden by the snow; then turned back to the right, making graceful sweeping curves down the mountain. He passed a tree, ready for the soft shaded snow underneath that can grab a ski when you least expect it. He fell into a reverie, the sheer kinesthetics of motion—and maybe something else too—pushing away all thought.

At length Chad vaguely noted he was skiing by mining scars: open adits like black unblinking eyes, old trails snow-highlighted on the surrounding slopes; spoils dumps, heaped with snow, dark rock sticking out in patches; even a few tumbledown buildings, now nearly shapeless masses of ragged stone adorned with a few sticks of gray timber. He found that he was following a trail, mostly choked with stones, and that he was moving his skis reflexively to dodge those stones. (His heels were unlatched again so he could stride as the trail flattened out. He didn't remember doing that.)

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Chad skied up in front of a low tumbledown adit that opened directly onto the trail. A crumbled pile of gleaming rocks lay next to the trail. The metallic yellow glint of the stones caught his eye . . . he picked one up absently, barely even noticing he did so, and put it in his parka pocket. Then he skied on. A distant part of his mind wondered at the haze that surrounded his actions.

Chad Gutierrez found himself walking along a canyon, skis slung over one shoulder, his ski boots unlatched to make strides easier, ski poles clutched together in his other hand as a makeshift walking stick. Snow had dwindled to discontinuous patches, lurking only in shaded areas. Up ahead the canyon opened out of the range front.

At first he didn't wonder why he was walking. He just *was.*

And then Chad realized he couldn't remember how he got here. He was on a ski trip—he had been skiing. The memory of the helicopter came back; then memories of fleeing the avalanche, and his hard fall. Then . . . nothing. *Nothing.* But here he was. . . .

Chad kept walking and finally emerged from the mountain front, his mind whirling. The drainage he'd been following, freed of the confines of the canyon, spread out abruptly into the broad desert valley below the Mule Deer Mountains. The sudden openness starkly contrasted with the narrow canyon he'd just left. Other mountains, low and blued by distance, stood silhouetted against the sky far across the valley.

This was not where he was supposed to rendezvous with the chopper, either. He paused for a second, then realized that the locator beacon would tell Charlie where he was in any case. That was the point, after all—sometimes in backcountry skiing you didn't come out where you'd meant to.

Speaking of which . . . he heard a familiar buzz crescendoing in the sky. Charlie flew directly over him, waggling the craft in acknowledgment, and slowed down abruptly to a near hover. It was a relief to see the chopper setting down on the flats a couple of hundred meters ahead. Chad slogged that way as fast as he could manage. Ski boots weren't meant for hiking.

The chopper squatted on the ground like an overgrown grasshopper, its big viewing bubble bulging low out front as if to bite the ground below. Chad dodged exaggeratedly under the lazily swishing blades and latched his gear into the rack below the cabin. Then he clambered up through the passenger's door and buckled himself into the seat.

"How'd ya get way over here?" Charlie asked.

"Dodged an avalanche and ended up in the next canyon over after a cornice collapsed under me. So I had to come out here." *Even though I can't remember doing so,* Chad thought to himself.

"You're entitled to another trip."

Chad shook his head. "That last time kind of freaked me out. Dodging an avalanche is bad enough. Then I took a bad fall, too. Kind of shook me up. I'm pretty tired too . . . no point in tempting fate." *And I still have that weird hazy feeling . . . do I have a concussion?*

"No problem," Charlie said. "Come back tomorrow." He shifted something on the controls, and the low thrum of the engine rose to a shrill whine, while the blades sped up from a lazy *swish-swish-swish* to a deafening *thwack-thwack-thwack.* The ground dropped away below them as though they were riding an express elevator. Chad, looking out through the bubble, felt an irritating twinge of vertigo. The occasional jolt from atmospheric turbulence didn't help, either. He found himself gripping the arms of the seat.

"You heard about Gold City? The lost mining camp?" Charlie asked as he tilted the craft toward Tonopah.

Chad shook his head.

"S'posed to be someplace in the Mule Deers. There's stories about people

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coming out of the mountains with jewelry rock in their pockets, but they couldn't tell where they'd gotten it, didn't even remember getting it."

"Jewelry rock?" Chad asked.

"Rock that's mostly gold. The highest of high-grade ore. You don't find it laying around anymore!"

"I'd guess not. Pretty picked over, now, huh?"

It was hard to hear over the racket, and Chad had only half his mind on the conversation. But he was trying to be polite.

"Yeah," Charlie answered. "Only place you find it now is underground, in a mine. Even as late as a hunderd years ago, during the Depression, there'd be tales. They said over in Tonopah that people would occasionally show up with these chunks of gold rocks, with no memory where they'd come from."

"Didn't people go out to *look?"* Chad asked.

"Course they did. That's what's funny, 'cause no one ever found the source. And what was even funnier is that they said the people who'd actually come out with the jewelry rock would never go back to look. It's like it just didn't cross their minds. Since then the whole area's been isolated in the Bombing and Gunnery Range. No one's been wandering around here for nigh on a century. We didn't even get the skiing concession till last summer."

"Yeah," Chad said. "I saw your ad online, and I couldn't resist. Right in my backyard!"

"Glad you did. Not too many jobs for chopper pilots these days, with the Air Force downsizing," Charlie said.

"Well, at least you'll get your chance to go prospecting."

"That's for sure. And I'm going to be out in the Mule Deers every chance I get!"

Chad pointed at the desert floor, checkerboarded with polygons of various colors. "That's my gold. I work for SolarFuels. The company that grows gengineered algae for fuel."

"So that's how you can afford this trip, huh?"

Chad grinned ruefully. "Don't remind me! I *should* be working. But you can only spend so many hours at work. And besides. To get the chance to ski, where no one had *ever* skied before . . . that's worth something. It's like you said about jewelry rock. You just don't find it anymore."

Charlie laughed briefly.

Chad noticed something heavy in his parka pocket. "What's this?" he wondered aloud. Absently, he pulled out the piece of jewelry rock.

"Where did you get *that?"* Charlie demanded.

Chad, astonished, looked at the gleaming rock in his hand. "I . . . I don't remember!"

The rest of the trip was very quiet, even with the roar of the rotors.

Chad had hardly left when Charlie called the fuel truck over.

"Heading out again, Charlie?" the fuel operator asked. "I thought you were done for the day." He topped off the tank and set the nozzle back into its cradle on the truck.

Charlie was electronically filing a hasty flight plan.

"Thar's gold in them thar hills!" he replied cheerfully, if a bit thoughtlessly.

As soon as the truck was clear Charlie took off and made a beeline. He remembered exactly where he'd picked up Chad, and figured that the gold outcrop *had* to be somewhere in that canyon. On skis, Chad couldn't have done anything but follow the drainage downhill. So he might even be able to find it this afternoon.

Charlie pushed his craft for all it was worth, much faster than he would have traveled with a client, and heedless of fuel consumption. It was almost like combat flying, right on the edge, with that sense of urgency driving you to fly to the limits of your ability. Except that

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no one was actually attacking him.

He buzzed the pickup point to get his bearings, and then headed up the canyon where Chad had to have walked out, flying as low as he dared. Charlie had to gain altitude where the canyon narrowed, but then dropped down again as it widened out. A ghost town lay there, its gray weather-beaten buildings casting the exaggerated shadows of late afternoon. Snow still lingered in the shady parts and on the north sides of buildings, but much of the area was open and dry. *Gold City!* Charlie thought. He vaguely wondered how such a well-preserved town could have gone unnoticed for so long, but it didn't seem important. More important was that he could find no place nearly big enough to set down the chopper. He'd have to set down outside the range front and hike in.

Worse, he could see lots of old dumps and adits on the hills around—which one held the jewelry rock? Well, clearly Chad would have been low down, on his skis. So he should concentrate along the bottom of the drainage. Maybe he could see bootprints or ski tracks in some of the residual patches. Trying to see better, Charlie dropped the chopper down just above the old town, moving forward slowly with intermittent hovers as he strove to locate Chad's trail. The rotors raised dust off the dry parts, finely pulverized rock puffing up here and there from previously sunlit spots. He smelled the pungent aromas of dust and sagebrush as rotor wash reflected off the ground below and blew back into the cabin. . . .

Suddenly Charlie noticed he was flying the helicopter. In the mountains. *Low* in the mountains. He throttled up abruptly, twisting away from the canyon side that loomed before him. The chopper, shuddering, slewed sideways on the verge of a stall. *Why was he here?* He was at a loss. Then a snatch of old song bubbled up:

In a cavern, in a canyon
Excavatin' fer a mine . . .

Charlie was singing tunelessly, aimlessly, while the chopper teetered on the edge of control. *To get the gold. Yes, the gold! That was it!*

Gold! Gold! Gold! Gold!
Bright and yellow, hard and cold!

Got to go back and get the gold. The chopper wheeled around, back toward the range front, barely under control. He had to get down and get the gold.

Charlie never noticed he was flying the chopper straight into the ground.

Chad turned the key in the door (*How quaint!* he thought, *a real metal key!*) and stepped into the room. He was staying at the old Silver Queen in downtown Tonopah, which for well over a century had been the highest building between Reno and Las Vegas. Ornate fire escapes still decorated the windows. In fact, the whole hotel, dating from before the First World War, affected a self-conscious Edwardian splendor.

Chad sat on the overstuffed bed, hardly noticing his surroundings. He clicked on the TV absently, out of reflex. The blank in his memory was like an aching tooth: he kept probing at it, trying to see if it had changed. And of course it hadn't. He pulled the gaudy stone out of his pocket for the umpteenth time, glaring at it as if it were a prisoner under interrogation.

The TV abruptly intruded into his reverie. An announcer was declaiming, "No further word on the helicopter crash in the Mule Deer Mountains. The pilot's name is being withheld pending notification of next of kin. We have unconfirmed reports that the Air Force is investigating the crash, but so far they have refused comment. We will post updates online as new information becomes available."

On watching the TV, Chad had a sudden thought. He remembered he'd been carrying those automatic video recorders, partly for safety and partly for a memento. *Why didn't I think of that*

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sooner? It was jarring . . . maybe even now there was a haze over his mind.

It was a minute's work to plug the helmet cam into the TV. He paged forward, watched his brush with death in the avalanche and then his hard fall as he headed into the other canyon. Then, what . . . ? He watched as he descended farther into the canyon, and then, thunderstruck, saw himself pick up the piece of jewelry rock out of a pile broken off an obvious gold-bearing vein. Chad then watched himself skiing down through a ghost town that looked like an archeological time-warp, with artifacts like museum exhibits. An old ore car still sat on a set of rusty tracks coming out of an adit, like a Disney prop. A store front had windows intact, dusty goods still dimly visible through the glass. A hammer rested on an anvil in what was obviously a smithy, as though the blacksmith had just stepped away for a minute. A partly mended horseshoe even lay on the anvil.

The movie was even more disturbing because it triggered no memories at all.

Chad had another thought. He'd printed out a set of detailed topographic maps of the Mule Deers where he'd figured he might be skiing. He dug them out and looked at them, retracing his route . . . it wasn't hard to identify the canyon he must have come out of. Of course . . . topo maps had been made from aerial photographs for over a century, and evidently mechanical means recorded faithfully. It was only human memory that was fallible.

A knock on the door interrupted his investigations. Chad looked up, puzzled. He wasn't expecting anybody. He clicked the remote on the TV to the securitycam over the door; at least the hotel didn't still have Edwardian surveillance technology. An unkempt man, maybe in his mid twenties, stood at his door, tattoos appearing abundantly around and through his torn and dirty shirt. The way he held himself, arms crossed, glaring at the door . . . "tough young punk" was the characterization that occurred, unbidden, to Chad. He clicked to another view and saw two or three other guys loitering in the hall, looking much like the first. Evidently they were trying to stay out of the line of sight from his door. Presumably they weren't aware that there was more than one securitycam.

He called the front desk, but there was no answer. He was about to call the police when he heard scratching noises at the doorknob. They were trying to pick that old mechanical lock.

Chad set the phone down. *I've got to do something* now, he thought. Tackling a bunch of toughs in his hotel room seemed like a really bad idea. He strode over to the window and looked out. Sure enough, that ornate fire escape came right to his window. A steel mesh catwalk with a thin railing went from window to window. It linked to the catwalk on the next floor down by a metal stair so steep it might as well be a ladder.

Deciding quickly, he stuck the video card in a pocket and made sure he had his car keys. And his cell phone. The window was stiff, probably not having been opened since the previous summer. To Chad, acutely aware of that scratching at the doorway, raising it seemed to take forever as he struggled with the recalcitrant frame. At least the intruders seemed to be having trouble with the lock—mechanical lock picking was probably another quaint skill these days, Chad realized. He snorted. Criminal skills must be as prone to obsolescence as any other line of work. Finally stepping out of the window onto the catwalk, Chad got reminded of the piece of jewelry rock as it swung heavily in his coat. He thought wryly that it would have easily paid for his heli-skiing trip. Still, he could do without the hassle it seemed to have brought him. All he could figure was that somehow those thugs outside had learned about his gold discovery.

He climbed down the ladder to the

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floor below, trying to be as quiet as possible. It was hard because the metal creaked and popped as it flexed with his weight. Then, on the second floor, the last ladder, which went to the parking lot in back of the hotel, was raised up. Of course—it wouldn't do to have the fire exit routinely accessible from the ground level. It would just give burglars and other nefarious types easy access to the hotel rooms. Like the ones in there now, for example.

The latch that released the ladder was obvious, but when Chad tried to lower it gently, it got away from him and dropped with a tremendous crash. As he scrambled down it, he saw someone looking down at him from the window of his room. At that point Chad jumped down the rest of the way. Should he now go back into the hotel's main entrance? But there'd been no one at the front desk. As he dithered momentarily, the decision was made for him. A man appeared on each side of the building, coming toward him. They appeared to have been among those waiting in the hall.

"Hey, wait up!" one said, breaking into a run. Chad didn't acknowledge the hail but dove for his car. Many people, he remembered, had gotten mugged through being polite. Social graces could get you in trouble.

Chad had made the right decision. One of the men pulled out a big wrench from underneath his tattered denim coat as Chad landed in the front seat and slammed the front door. The engine started immediately. He engaged the gears and popped the clutch to back up, forcing the fellow running up with the wrench to jump out of the way. Chad then cut the wheel sharply coming out of the parking space. He headed for the exit, gunning the motor as he passed the other assailant. That punk also had something out in his hand, and as he jumped out of the way, Chad heard a *thunk* on the roof. *At least it wasn't my head,* he thought.

Chad paused at the driveway entrance, where Highway 95 passed through town. Now where? Then he saw a car coming up rapidly behind him out of the parking lot and once again had to react rather than decide. That car was an ancient Detroit model, probably rear-wheel drive, and probably weighing a ton more than Chad's 4x4. It didn't appear to plan on stopping. Chad lurched out of the driveway into the street, squealing into a right turn. He cut off an oncoming car, which shifted to the left lane quickly, its horn blaring. The old Detroit car followed Chad's, its tires also squealing.

Chad accelerated suddenly and pulled into the left lane, ahead of the car he'd forced over. He kept accelerating, hoping if he drove crazily enough, he'd get pulled over by a cop. Or the punks chasing him would.

No such luck. He was swiftly approaching the edge of town—even with SolarFuels' new contribution to the local economy, Tonopah was not very big.

Chad considered where to go. On the highway, his 4x4 would be no match for the muscle car behind him. Even if a cop was on his way right now, there was no guarantee he'd arrive in time.

Deciding quickly, Chad twisted the 4WD knob on the dash to engage the front wheels, and then turned sharply left onto the new graded road toward Alkali Lake. They'd been installing some new solar ponds that way, and it would probably be easier to lose his pursuers on the dirt. He had a better vehicle for that sort of road than they did. As he straightened out, he saw a plume of dust rise up behind the car. Part of his mind marveled at how snow could cap the high mountains while the valleys remain so dry.

The car behind had also turned, after a spectacular skid—and after being nearly broadsided by a vehicle in the oncoming lane. Chad smiled grimly. Well, at this point he'd hardly thought it was just coincidence they were taking the same

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road as he was.

They were coming up fast, too, as he glimpsed through occasional gaps in the dust. The road was too smooth to slow them down as he'd hoped.

The intermittent billows of dust behind gave Chad a new idea, though. Not far ahead were the just-built ponds, their surrounding embankments freshly sculpted out of newly bulldozed dirt. Dirt as fine as talcum powder. At the last minute Chad braked and turned onto the embankment. His pursuers missed the turn, skidding into a 360 on the loose gravel, but they managed not to roll their vehicle. And not to land in the ditch alongside the road. They started back toward where he'd turned.

Well, so much for Plan A. Now for Plan B. Chad gunned his motor, bouncing wildly over the uneven surface atop the new embankment. Dust poured up behind in opaque clouds. Up ahead the embankment bent at right angles as it turned to enclose the pond. Chad waited till the last possible moment, then braked abruptly and steered hard right to follow that bend. Blinded by his dust—and following too closely—his pursuers didn't see the maneuver till too late. In turning they merely managed to get sideways so that they skidded down the embankment. Although they didn't roll, their vehicle was now stuck, its tires sunk so far into the soft dirt that the undercarriage rested directly on the ground. Chad could see new plumes of dust as they revved, spinning the rear wheels uselessly.

Chad followed the embankment around back to the main graded road at a more sensible pace. Once a prudent distance away, he called the sheriff's office on his cell to report the "accident." He related how he'd been pursued and therefore did not stop and render aid. And then, before they could order him to come in and file a full report, he clicked off the cell.

Getting back to US 95 had been anticlimactic. Chad had picked up the main highway again out of Goldfield, and had decided to head back to Vegas that night. No way would he go back to Tonopah, not after what had happened at the hotel. He'd call the sheriff's office back tomorrow and file a full report.

Chad yawned and shook his head, covering his mouth out of habit while holding the wheel with his other hand. It had been a long day. And a weird day—his free hand hefted that lump in his coat pocket. Jewelry rock, Charlie'd called it—and he could no more remember picking it up—he could no more remember that whole *canyon*—than he could the Battle of Shiloh. Something didn't fit, though—he sensed an anomaly somewhere that he couldn't make his tired mind bring out in the open. Something about the mine workings . . .

At length he noted a car coming up fast behind him. It was a dark late model sedan—Chad checked his speed involuntarily. This far out of town, cars were on manual control even on the Federal highway, and it looked like the sort of car the Highway Patrol would drive. And although the vehicle had no bubblelights, it could be unmarked. He was holding the speed limit, though. The car pulled up, tailgating him, and flashed its headlights.

Normally Chad wouldn't have given the incident a second thought, figuring it was just another idiot with a death wish on the Tonopah Highway. He was suspicious now, though. He'd been pursued once today, and this seemed a bit too much of a coincidence. And it couldn't be the sheriff—if the sheriff were *that* eager to talk to him he'd've been driving an official car with bubblelights and a siren. Chad therefore ignored the flashing lights, waiting until a primitive road came in from the right. Then he blinked and pulled over onto the shoulder, slowing down as he did so.

The dark sedan swept around, nearly sideswiping his car. He tried to look in

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the passenger compartment as it passed, but despite the lengthening shadows all the windows were darkened. He wasn't really surprised when the vehicle then cut in front of him abruptly and braked, bright lights flaring red in front of him. Already prepared for some such action, he'd continued to decelerate as the sedan had passed. Now he turned hard right onto the little dirt track and gunned the engine as much as he dared. His vehicle jounced wildly as it accelerated up the ruts.

Chad, glancing in the rearview, saw the sedan stopped completely on the highway. He pushed the accelerator down even more. His vehicle responded with a bounce that would have thrown him into the ceiling had he not been wearing a seat belt. He winced as a rock slammed into the undercarriage with a heavy *thunk*. *Well, that's what skid plates are for.* Ahead, the road was barely more than a trail, ill-defined ruts winding among the desert rocks, the occasional Joshua tree looming up like a sentinel. At least he *could* see ahead. He steered tightly, trying to avoid the worst of the rocks—and to miss the occasional yucca that loomed up, its spines like spears aimed at his tires.

He glanced at the rearview again. The sedan had backed up, and was now nosing slowly off the highway onto the track. Chad grinned wolfishly to himself. *Good luck, guys, with a rig like that!* Then he had to slow down to dodge around a rock in the middle of the track.

Another glance at the rearview showed that the sedan had managed to advance ten meters or so down the track, but now it didn't seem to be moving. Chad hoped it had gotten hung up on the rocks. Even if not, they couldn't possibly catch up to him. He looked to the path in front of him, seeing a stretch relatively clear of rocks. He gunned the motor even more, trying to build up his lead. He again grinned to himself, *Always said I'd take on any muscle car if I could choose the track!*

Now the rearview showed both the sedan's front doors open, and two figures in dark clothing had emerged. It appeared, as much as he could tell from the bouncing, that each was carrying something—a handgun?—in one hand. They *were* guns: he saw one figure lean diagonally across the hood to take a shooting stance, his hands cupped around his weapon, while the other, standing in front of the grill, leaned back on the front of the car, steadying his gun in both hands.

Chad was suddenly aware of a couple of red dots dancing across the paneling and dashboard. Laser sights! He slewed the steering wheel back and forth, heedless of the alarming clunks from underneath the car. Even for pros, hitting anything with a handgun at this distance would be a matter of luck more than skill. He would do his damnedest to stack that luck in his favor. Still jouncing madly, he then swung around a Joshua tree and up a shallow draw on the right. In this open desert, he could drive most anywhere, as long as he dodged the yucca and Joshua trees, and the occasional big rock.

The red dots vanished as a low ridge now cut the line of sight back to the sedan. Chad kept going, though. He didn't really think the suits would try to pursue on foot, but putting more distance between them and himself seemed like a good idea nonetheless. *Who are these guys?* he wondered. They didn't seem like the claim-jumping punks. Those didn't wear suits, for one thing.

After half an hour or so, he was starting to relax slightly. He'd worked his way back to the original track, and was continuing on generally southerly. When he could, he supposed, he should angle back and pick up US 95 again. Something bright caught the corner of his eye, back to the northeast. He looked back and saw the distant snowy peaks of the Mule Deers catching the last rays of the setting sun. *And I was up*

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there earlier today! Some days are too crazy to believe. . . .

Lights moving lower down, against the shadowed base of the mountains, then attracted his attention. Lights blinking, moving rapidly—it was an aircraft, he saw. A helicopter, to be exact. It was closer than he'd thought at first—in fact, it looked to be somewhere along US 95.

And furthermore, it seemed to be coming this way. . . . On a sudden thought he turned off the car. *It's surprising how being chased can make you paranoid. . . .*

His vehicle had an autolocator tied into the GPS, of course. That was now a legal requirement for operation on a public street. The autoroads inside major cities used it for the automatic control. But it was common knowledge that it also provided a way to track down a particular vehicle.

At least in the twilight his vehicle would be very difficult to spot. As long as a radio beacon wasn't shouting its position out, the car was just another dark lump indistinguishable from a rocky outcrop or a Joshua tree. And the autolocator didn't function when the car was turned off. At least it wasn't one of the new models that didn't even run off the battery, but off a permanent radioisotope generator instead.

Chad crouched down and watched the chopper pass, its lights flashing, no more than a couple of kilometers away. Perhaps he was being silly—but after all the experiences today, he wasn't going to *assume* that a chopper just happened by.

What in the *hell* was going on? A chopper certainly was beyond the means of any greedy claim jumpers. *That* was the government for sure, most likely the military. And it meant that getting to his destination—not to mention the destination itself—was now in serious doubt.

Chad considered. He could probably get down almost to Vegas on back roads, if he disabled the autolocator. And if he traveled by moonlight. But then, so what? Clearly they (whoever "they" were) would have his house under surveillance. And if he went to a motel instead, they'd track that almost as quickly.

Where to, then? What he needed was media attention; *lots* of media attention, so if he vanished into a news blackout someone might notice. So, who . . . ? He considered. What about that reporter who'd interviewed him last month? Linda. Linda McPherson. She'd done a whole piece on the solar fuels installations. She lived in Pahrump, too. That would be a lot easier to sneak into than Vegas, and Chad thought he probably could find her place again.

More than that, though—don't just rely on *a* reporter. Get to a commercial interlink and post the story himself. To as many places as possible. There were resort-casinos with hotspots in Pahrump, too. He would swing by one of them before trying Linda's.

Now he had a plan. The next step, though, was to disable the autolocator before turning the car on again. He dug out the flashlight he carried in the glove box and clicked it on. Nothing happened. Of course, it was out of fuel. Swearing, he went to look for some. He thought he had a bottle of methanol with his laptop . . . yes! Chad filled it, trying not to spill the fuel on himself, and not succeeding. *You'd think* that's *a technology that would be worked out by now!* At least now the light worked. He got out and opened the hood, being careful to keep the beam pointed down. It took some doing to find the autolocator, but he finally ran it down by locating the GPS antenna and tracking its lead. Into a solid, hermetically sealed metal box welded to the frame.

Of course it won't be easy to disable. Too much hazard from people who don't want *to be located. Like me, for instance.*

After determining that there was absolutely no way to cut into the electron-

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ics without special tools, Chad finally picked up a rock. Grimacing—he *hated* doing this to his car, and he knew exactly who was going to end up paying for the damage—he smashed both the GPS antenna and receiver. He put some big scratches into the finish, too.

Gingerly, he then turned on the vehicle, being sure to leave the lights off. A red light flashed on the dashboard, warning that the autolocator was not functioning.

At least his car didn't have an interlock that kept the car from running at all.

Chad pulled into the parking lot at Pahrump Pete's Hotel, Casino, & RV Park, after sneaking into town the back way from Death Valley Junction. Even though it was paved, that road had hardly any traffic in the wee hours, so he'd been able to make time by using it. Whenever he saw headlights, he'd pull way off the road and turn his car off. Otherwise, he traveled without lights as much as he could, using the moonlight instead.

Chad parked as far away as possible from the garish illumination. Brilliant rippling lights in a pixelated sign two stories high promised both sure winnings and bargains on food (BREAKFAST 24 HOURS!). His stomach rumbled at the thought, but he couldn't risk a meal as well. The sign didn't mention the commercial wireless hotspot, but he knew the hotel had one.

Chad made sure his notepad was topped off with methanol. He'd stopped for an hour or so out in the wilderness, while waiting for the Moon to rise, to write up his experiences, adding his video as an attachment. Now he didn't want to risk running out of power while uploading.

All set. He picked up the notepad and the card from the videocam and opened the door, trying not to act surreptitious. He was acutely aware of the heavy lump of gold still reposing in his coat pocket. He walked across the parking lot and went in the back entrance of the casino without incident.

Even this late—or this early—there were lots of people about: diehard gamblers still fixated in front of the video machines, barflies, obvious hookers, dedicated drinkers, the occasional snowbird tourist checking out the local color . . . at least a Nevada casino was still a place where a stranger could drop in at four in the morning without comment or notice. He also hoped that with lots of people about, it would be hard to pick off an individual without making a fuss. If it came to that.

Chad chose a seat in the hotspot that backed against a wall so he could watch his surroundings better. No one else was linking in right now—he worried about that a bit as he thought it made him more conspicuous, but it couldn't be helped. Trying to control the trembling in his hands, he unfolded the notepad and logged in. It was only a matter of a few minutes to e-mail his tale to a large assortment of friends and acquaintances, and to post it to some newsgroups he followed.

Done! He turned off the notepad and tried to look around inconspicuously. No one seemed to be paying attention. Standing up, he went out into the main casino area and headed for the door where he'd entered, trying to keep his pace a leisurely walk. He opened the door and with elaborate casualness looked across the lot toward his car. . . .

And spied a couple of dark figures there. He quickly shut the door again and stepped back, the jolt of adrenalin setting his heart off like a jackhammer. He figured the whole casino could hear it, but nobody seemed to notice. Trying not to break into an outright run, Chad went back across the casino, now toward the front door, threading between the garishly lit slot machines. At the entrance, multiple gaudily decorated double doors opened out onto a wide shallow staircase with faux-gold railings,

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across which played the shifting colored lights from the giant sign. *This* was no place to sneak out—it might as well be daylight. But where else could he go? All he could hope was that they hadn't staked out this entrance yet. Out front, a SolarFuels filling station proclaimed "Methanol and biodiesel!" beside a brightly lit canopy over rows of fuel pumps. An RV was parked at a filling island.

Now what? he thought to himself. *Walk to Linda's house, that's what.* She lived only a couple of kilometers away. Not a big deal—if he could remember the way. In the dark.

And if he could get out of here in the first place. He walked confidently down the stairs, trying to act just as though he'd left the RV to go into the casino for a moment. He crossed the tarmac and rounded the rig, putting it between him and anyone who might be watching from the entrance—and then he kept walking, down and across the highway, his skin crawling the whole way, expecting a challenge at any moment. Nothing happened.

Once across the highway, Chad headed down the little feeder road that came in at right angles. Although Pahrump Pete's still poured kilowatts' worth of photons into the air behind him, at least there were no streetlights here. He shouldn't stand out in his dark ski parka. And even though many houses had big sodium-vapor lights out front, the road was lined intermittently with tamarisk shrubs, which added welcome cover. A Mideastern import that had found the American West congenial well over a century previously, tamarisk had been repeatedly proclaimed a "noxious weed"—and had thrived nonetheless.

Chad was grateful it had done so.

A half hour and several wrong turns later—and after a few panicky dives into tamarisk thickets when headlights had turned down the road he was on—he recognized Linda's place. Bits of tamarisk itched abominably under his shirt—the dry fronds crumbled to powder at the slightest touch, and he hadn't been able to be fastidious about taking cover. And it seemed every crumb had found its way between his clothing and his skin.

Linda's little house was completely dark. *Not surprising at this hour,* Chad thought. At least her car parked outside suggested she was home. Looking around one last time, he walked gingerly up her driveway, past the car, and tapped on her door. Nothing. He knocked again, much more loudly—it seemed to him as though it would wake her neighbors, though that was silly—all the lots around here must have been at least a couple of hectares in size.

Finally, the porch light directly over his head went on. He blinked in the sudden light. Then the door opened. Linda stood there in a bathrobe, hair disheveled, partly silhouetted in the open doorway. She was holding a short-barreled autoloading shotgun with an extended magazine. It wasn't pointed at him, but it wasn't exactly pointed away, either.

"Chad! What are you doing here at this hour?" she said, her voice both sleepy and testy.

For answer he held out the piece of jewelry rock.

Linda took it uncertainly, left handed, keeping her grip on the shotgun with her right. She almost dropped the rock in surprise at its weight. She held it up, looking at it closely, tilting it slightly to see the reflections dance off it in the light at the doorway. "This is gold!"

"That's the problem. Or maybe it's just part of the problem," Chad said. "Linda, I've gotten myself mixed up in something I don't understand. You're a reporter. There's a story in here. Maybe a big story. And I'm going to need someone who has access to the media. The *big* media."

Linda looked at him sharply, but she must have found something convincing in what she saw. Maybe it was his obvi-

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ous worry, or maybe it was the sincerity in his voice, guileless with exhaustion.

"Okay, come on in." She beckoned with the shotgun, still holding the piece of jewelry rock in her left hand. He followed her into the doorway.

"Have a seat," Linda said, gesturing to the couch. He sat down gratefully into the cushions.

She carefully placed the shotgun in a rack by the door and, equally carefully, set the jewelry rock down on the small coffee table in front of the couch. "I figure you'll need some coffee," she said. It was hardly a question.

Chad nodded. "Please!"

Linda went back into the house's tiny kitchen, separated from the living room only by a low half wall. A loud *whirr* was followed by the aroma of fresh ground coffee beans.

"Okay, tell me the story," she commanded. She filled the percolator with water and shook the newly ground beans into the filter. Once she'd confirmed that the *drip-drip-drip* had started, she came back and sat down.

And he told the tale, starting with his heli-ski trip. Linda poured them coffee once the dripmaker chuckled its last. Chad ended with, "So, when I got to town, I went to a public hotspot at Pahrump Pete's. I e-mailed the write-up to some friends and posted it to some newsgroups I frequent. Just on the off-chance that someone might wonder if I was never heard of again. I saw figures around my car when I came out of the casino, so I turned right around and walked over here."

She started and looked at him, a little more grimly. "You're sure you weren't seen? Or followed?"

"Pretty sure. I didn't see anybody. And I hid whenever I saw headlights."

Linda picked up a remote and pointed it at the console across from the couch. The console looked disproportionate to the room, both in size and quality—like a stretch limo parked in a working-class neighborhood. On a click, an eerie black-and-white image flickered into life. Chad recognized it as infrared video. She kept clicking, and successively he recognized what must be views out the back and sides of the house.

"Well, there's nothing now," Linda commented. "Let's see if it logged anything moving since you came in." She clicked another button, and a ghostly white outline appeared on the street. Chad thought it looked more like a dog, though. Linda barely spared it a glance. "Oh, just the neighborhood coyote."

She turned back to him. "If they're real pros, of course, they could still be out there, just farther away. But so far the coast looks clear."

Chad was surprised at the sophistication of her surveillance.

She looked wryly at him. "If you're a journalist, *and* you're female, you take lots of precautions. Or you do if you're smart."

She clicked some more keys and a news site replaced the spectral coyote image. "Besides, I do a lot of my editing here. I need a professional-scale video system. Now, let's see what's been happening up in Tonopah." She clicked some more, and they both read. Chad was dismayed, but really not surprised, to see that the pilot killed in the crash had indeed been Charlie Jones. There was also a brief, noncommittal note about a car crash near one of the new solar energy ponds. But there'd been no follow-up to that story, either.

"Look at this," Chad commented. He'd found a little filler saying that the Department of Energy's telepresence team was called up on standby until further notice. Linda read. "Now *that's* interesting," she said. "The military borrowing some expertise from the DOE, do you suppose? And somebody at DOE didn't know they were supposed to keep it secret . . . Well, this all lays to rest any last, lingering suspicions about your story." She took another sip of her coffee. "And it's clear it's *not* just the gold. They don't impose a news blackout just

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for some claim-jumping thugs. The bad news is that the Feds have lots more resources for finding you. The good news is that they probably just wanted to put you on ice for a while."

"So what do you suggest?" Chad asked.

"Let's do an interview. It won't be as slick as it would be with a real cameraman, but I'd be leery of getting anyone else involved right now anyway. I'll prompt you for oversights and clarifications, just as though we were doing a show. Then I'll post it, to my station, and to a bunch of contacts. I'll ask them to sit on it unless they don't hear from me by—say by noon today. And I'll also put it into my blog, with a timed release."

She looked at him approvingly. "Just what you've already done with your contacts. That was good thinking. The only way to fight something like this is to make it as public as possible as quickly as possible."

Linda then looked down at her bathrobe and made a face. "Okay, let me first get to looking like a professional newswoman. Then you can get cleaned up a bit while I set up the camera and mic. Comb your hair, at any rate!"

"And I could get rid of the tamarisk crumbs under my shirt, too." Chad laughed shortly. "Of course, they could be all that's keeping me awake right now."

"Well, I think we're both going to want more coffee. That's another thing you could do while you're waiting."

It took almost an hour—and another pot of coffee—to get the talk in the can and posted. Then Chad asked, yawning, "Okay, now what? I can't get my car, and it's illegal to operate on a public street in its present condition anyway. And I'm *sure* my place in Vegas is staked out." He drained the rest of his coffee and shook his head. "I'm afraid the coffee's not working very well now either. It was a long day. Long day and night," he amended.

Linda grinned. "I've been thinking about that. We don't want to stay here, because Pahrump's too small. We'll take my car into town. It's turned out it's a good thing you had to leave your car at the casino. It'll be a decoy. There shouldn't be any reason for them to connect you to me, at least for now."

"So what's in Vegas?" Chad asked.

"Well, first, it's a big city, so it's better for lying low if it comes to that," she replied. "But this business with telepresence . . . one of the top telepresence guys in the country is at LVU. Professor Jim Murthy. And I've interviewed him several times. By the time we get to Vegas it'll be the start of the regular work day. Even for academics. I figure we go right to his office first. If he's not there, or doesn't know anything . . ." she shrugged, thinking aloud, " . . . he should be able to send us to someone who *does* know."

She pulled back a curtain and peered out. The eastern sky was now distinctly gray. "If we leave now, too," Linda continued, "we'll blend in with all the commuters."

Chad hauled himself to his feet. "Okay, I'm ready. As ready as I can be in my current state."

Linda picked up the shotgun. "You know how to use one of these?"

Chad worked the action experimentally. "Sure. It's like my skeet gun."

"Let's bring it. Lay it in the back. It's not technically 'concealed' that way, but it's available." She looked at him. "We don't want to get in a firefight with the Feds. If it's claim jumpers who want to play rough, though, it will come in real handy."

Linda's car was a little late-model hybrid. She folded the passenger's front seat forward and gestured. "Chad, lie down in the back," she said. "Let's not advertise that I've got a passenger."

"Wake up, sleepyhead!"

Chad stirred reluctantly. "Can I sit up now?" he asked.

"Should be okay. I had the news on.

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There's some activity outside Tonopah, but no official word at all on what's going on. Which is just what a reporter likes to hear. It means something out of the ordinary's happening. This could be big, Chad. Thanks for getting me involved."

"You're quite welcome." He sat up and stretched stiffly. "I'd just as soon not be involved, myself."

Linda chuckled. She parked and said, "Stick the scattergun under the seat." She grabbed her notepad and mic and got out of the car, walking swiftly. Chad followed more slowly, still trying to wake up. There was *something* else, he knew.... He felt that if he could just rest for a second, an important clue would become plain.

Murthy was a successful enough grantsman to have his own secretary. Linda knocked at that office, and was rewarded with a tentative "Come in?" She did so immediately, Chad following. A strikingly pretty young woman with a long blond ponytail was standing by a desk, holding a phone handset.

"Hello, C.J.," Linda said breezily. Having noticed the empty inner office as well as the absence of the secretary, Linda then took a stab in the dark. "Has Jim already gone up to the Mule Deers?"

"Yes, he needs another experienced teleoperator," the other woman said, lowering the handset. "I was just about to call him, in fact. I need to double-check I've got everything he wanted."

Linda then turned toward Chad briefly and winked. She then said, "C.J., I'd like you to meet Chad Gutierrez. Chad's just come back from the Mule Deers." To Chad Linda said, "C.J.'s Jim's star student. I talked to her a lot when I wrote the piece on the telepresence lab. Meet Carolyn Jean Horne, but she goes by 'C.J.'"

C.J. blushed slightly. "Linda, I'm hardly the star!" She smiled briefly at Chad as they shook hands. Chad felt as though he'd been sandbagged. *Not my idea of a robotics nerd at all!* he thought. But he managed to mutter some pleasantries.

Linda was saying, as C.J. returned to her telephoning, "I'd like to talk to Jim too, C.J., when you get a chance." C.J. nodded. After an exchange involving lots of technical jargon, C.J. said, "Oh, and Jim. Linda McPherson's here. Says she wants to talk to you too." She then clicked on the speakerphone.

"Hi, Jim!" Linda said.

"Uh, hi, Linda," Jim said. "I can't really talk right now...."

"You're near Gold City, right? Where some guy skied down yesterday. And triggered some strange phenomena."

"Well, yeah, but ..."

"That guy's standing right here beside me. In your office."

"He *is?* And he's *okay?* Boy, we'd like to talk to him."

"You mean he shouldn't be okay?" Linda asked innocently.

There was a pause. "Well, no. No one that came that close to the ... the object has even ... well, they're not in good shape. We really need to speak to him."

"Well, he had some rather ... unpleasant experiences in returning from Tonopah. At least some of which apparently were due to your clients."

Another pause, then Murthy's voice returned. "They *say* they just wanted to talk to him." Murthy paused again. "Linda, they don't know what it is. There's something there that disrupts humans neurologically. And drastically. They first tried sending people in with cameras and such, and they all went completely psychotic."

"Like Charlie Jones." Linda made it a statement.

Again a pause. "Well, yeah, he was the one that kinda triggered the investigation. Charlie still had a lot of friends in the ... um, in my client's organization."

"So now you're trying telepresence. That's what we guessed, from Chad's experience."

"Yeah. That's right." Another pause. "Linda, sorry, I can't say any more right now."

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"Jim, your clients are going to need an embedded reporter, keeping the real-time records." she responded. "They can't sit on this forever. And then they're going to need some favorable publicity. They'd better be laying their contingency plans for when it all blows up on them."

It dawned on Chad that Linda, in her eagerness to get the story, was perfectly willing to turn them both in at this point. He felt a flash of irritation, particularly because he realized it was too late to rein her in. She evidently thought she was now dealing from a strong position. He'd just have to hope she was right.

A very long pause. "Okay, you and Mr. Gutierrez ride out with C.J. I'll see you here."

The phone clicked, and shortly thereafter they heard another knock at the door. C.J. opened it to reveal two men in dark suits. They looked like retired linebackers despite their exquisite tailoring. "Ms. Horne?" one inquired.

C.J. nodded.

"I'm David Braun. We're your transportation and escort. We understand you're to bring some more equipment. We need to get it loaded."

"There's not too much," she answered. "I've got it all together in my office. We can pick it up on the way out."

"Very good." Braun then turned toward the room. "Mr. Gutierrez," he said, "That's quite a rig you've got."

Chad suddenly got it. "You shot at me! I saw your laser sights."

"No, we didn't shoot. We decided there was way too much chance of taking out you instead of a tire. So we let you go. We figured the risk was worth it. And so it was. You're now on the team, just as you would have been yesterday."

Whether I want to be or not, Chad thought. He still wasn't sure he wanted to go back to the Mule Deers, Linda's enthusiasm or no; but clearly the decision was now out of his hands.

During all this, Braun's partner hadn't said anything. He kept his hands inside his suit jacket, though, and Chad had no doubt one—or both—held a weapon. If necessary, he was perfectly prepared to shoot holes through that expensive fabric.

Braun had continued talking. "There's a chopper ready at Nellis, and Colonel Toth doesn't like to be kept waiting. Let's go."

Braun's silent partner held open the door while Braun, Chad, and the two women filed through. The partner then brought up in the rear.

"You know, I'd never ridden a helicopter before yesterday—and now I'm in one again!" Chad remarked to no one in particular.

"Well, you'll find this one a bit different, I expect." Colonel Toth had proved to be the very model of an Air Force officer; impeccably clean cut, crisp, no-nonsense . . . and as sharp as a stiletto. They'd found out he also held a Ph.D. in physics. Chad had never fallen for the stereotype of military officers as dull martinets, but still . . . it was interesting how thoroughly Toth shattered the clichés. Remembering C.J., he then thought it must be his day for stereotypes to shatter.

The chopper *was* different. It was a lot bigger, for one thing. They rode in back of the pilot, on benches among a welter of equipment—monitors, data displays, even a full telepresence link for C.J. C.J. was already linked in, in fact, the VR helmet down over her head, her hands encased in the skintight wire-gloves. One particularly large monitor showed the view she "saw." To her, of course, it seemed that *she* was approaching that adit mouth up a narrow little canyon. Other sensors and telebots bobbed in and out of view at the edges of the display. Presumably, Chad thought, their outputs filled the other displays.

What the hell? The same thought must have occurred to everyone. C.J.'s display abruptly blurred, then steadied.

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Then they saw some of the other displays of environmental variables—neutrino emissions, magnetic flux, gamma rays, and so on—oscillate wildly. When one would steady, another monitor view would get all blurry. Even the outputs of the real-time analysis of trace atmospheric components spiked crazily at one point.

Linda pointed to one of the telepresence monitors. "Look at that!" C.J.—or her robot projection—was nearly at the adit mouth. By that entrance lay something clearly artificial, and just as clearly out of place in a nineteenth-century mining camp. It was a roughly cylindrical object perhaps two meters long, with odd protrusions here and there, and with a matte-type finish; not metallic, but almost like ceramic. Evidently it was putting out a crescendo of signals, and the increasing electromagnetic cacophony was disturbing the readouts.

The object exuded age, too—the finish was not only dull and scratched but mottled as though stained over the years, and some of the protrusions looked broken. "Looks like it's been there since the Pleistocene," Toth commented.

Suddenly Chad's fatigue-addled thoughts came together. "Gold City!" he shouted. C.J., deep in the telepresence link, didn't respond. Linda and Colonel Toth just looked at him as though he'd lost his mind. "Huh?"

"That's what's been eating at me. Look, I couldn't remember skiing down the canyon because apparently the . . . the object disrupted my short-term memory. Yet in the 1800s they built a whole town there and started to mine gold! They even dug out that vein where I picked up the jewelry rock. How could they have done all that if that *thing* affected them like it affected me? Either it wasn't there at all, or it's changed.

"But it *must* have been there already, it looks so old. So somehow it must've learned how to confuse humans so it could keep itself secret. But it must've taken a while. And that would also account for why Gold City was abandoned so quickly. People just walked away in the middle of what they were doing."

Toth said, "Well, if that's the case it's in trouble, because we're throwing every sensing device we can think of at it."

But Linda, frowning, gestured at the oddly blurry monitors, and at the wild oscillations in the other data displays. "But maybe that's just what it's trying to do. Confuse us."

Chad nodded in turn. "Maybe it's realized it's being observed again, and it's trying to blind the observers. By trial and error."

Toth snorted, "It can't confuse them all."

Chad replied, "Well, I wonder what its Plan B is, then, when it realizes that."

The . . . it had to be a *device* . . . was also moving. Some of those protrusions seemed to be extending into appendages. As they tried to make sense of the blurred view, they saw the cylinder raise itself up on an extension. It wobbled uncertainly for a few seconds, then fell over and rolled a meter or so, like a log on a skidder. They could catch glimpses, in the occasional clear images, of new projections extending, of new motions as the device continued to tilt this way and that.

"It's *broken,"* Linda whispered. "It's trying to get away, and it *can't."*

Something in the way she spoke made the hairs on the back of Chad's neck rise. It *did* act for all the world like a cornered creature, injured and thrashing. And then abruptly all the monitors washed out with static and all the data read-outs flatlined, at the same time as an intolerably bright flash limned the mountains dead ahead of them. Dazzled as they were, the self-darkening windshield had nonetheless saved their eyes. *That was a nuclear explosion,* Chad marveled. The pilot, his training taking over, dove immediately to set them down behind the nearest mountain, to

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avoid the shock wave.

Even parked in the lee of the mountain range, the chopper shuddered violently when the wave went by, dust dancing up from the desert floor around them.

And then it got very quiet. The pilot worked the communications gear, but the only results were flashes of static. "Sir, I can't raise anyone."

Toth nodded. "The EMP has probably wiped out all the nonhardened electronics within a few hundred kilometers." He glanced back into the rear. "Including the telepresence. Is Ms. Horne okay, Ms. McPherson?" Linda had folded back C.J.'s VR helmet. The other woman was completely unresponsive, lolling back in the telepresence booth, eyes half closed, her mouth slack and drooling. Only her seat harness kept her from collapsing onto the floor. Even in the best of circumstances, the abrupt breaking of a deep telepresence link could lead to serious psychological trauma. Linda was feeling for a pulse, checking for breathing, pulling up C.J.'s eyelids to look at her pupils. "She's alive, Colonel, but she's completely out of it. I think we need to get her to professional help as fast as possible."

Toth nodded. "Can you get us back to Nellis?" he asked the pilot, who nodded in turn. "Let's go."

"Yessir."

On their arrival, the paramedics had taken C.J. away on a stretcher, while the chopper immediately lifted off again. Toth, however, had ordered them to accompany him for a debriefing. They came into an office to hear General Zemani, Toth's superior, involved in one half of a conversation.

"No, Mr. President. We don't know what happened."

A pause.

"Yes, it was a nuclear blast. But it wasn't ours. We lost a lot of good people, sir."

Another pause.

"No, Mr. President, we had detected no fission materials beforehand. If we had, we'd've taken a lot more precautions. We have no idea how it managed to blow itself up."

Another pause, Zemani now grimacing.

"We don't know what kind of nuclear event yet, Mr. President. We have teams out doing fallout collection right now. But yes, it seems that it arranged a nuclear explosion without conventional fission materials."

Another long pause.

"No, Mr. President. I can't think of a bigger threat to national security, either."

Zemani hung up the phone—a secure link, no doubt, as it was attached to the wall by an actual wire—looked at them, and sighed. "Well, the explosion was seen by half the spysats in the sky, and now the whole world wants to know what the hell's going on. We're trying to tell them that's exactly what we'd like to know, too."

"Well, General, it looks like some sort of probe. A damaged probe. A *paranoid* damaged probe. It blew itself up to keep its secrets."

"Yes, Mr. Gutierrez, I think we all agree on that. The questions are," he held out one finger and grabbed it with the other hand, "One. *How* did it manage to blow itself up? It's not hard to see the security issues if it's possible to induce nuclear reactions without a fission trigger. All the security around high-grade fission materials worldwide becomes moot."

"Two," he extended the next finger and grabbed it, too, "what are its owners' intentions? Their technology is clearly way ahead of ours, and having a probe that self-destructs with a nuclear blast suggests they're both paranoid and not very friendly. They're sure not worried about collateral damage. They may even know now that their probe blew itself up. From those polarized neutrinos."

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"That's impossible, sir!" Colonel Toth protested. "It's been *proved* theoretically that you can't send FTL messages with quantum entanglement."

"Well, maybe they have different theoretical descriptions," Zemani said mildly. He had a scientific background, too. "But why else would they be saturating the environment with neutrinos? *Polarized* neutrinos, no less? They're hardly a weapon! But they can penetrate ordinary matter with ease—ideal for communications, if you can detect them. We came up with the neutrino trap a few years ago. Surely the device's owners have it too. We have to assume that the device's controllers are now aware of its fate."

Toth nodded slowly, and Chad felt that same chill as when observing the device's desperation just before it blew itself up.

"You're going to have to talk about it, then," Linda said. "The way you've handled it so far, you couldn't have done a better job of acting like you have something to hide. Now everyone's going to think the U.S. was carrying out clandestine nuclear experiments."

"Even though that makes no sense?" Toth asked. "With all that desert to use, why would we carry out experiments so close to civilian territory?"

Linda shrugged. "Military experiments have gone wrong before. Your best bet is to go public with *everything*. Starting with the nineteenth-century legends. And if the . . . the owners *are* a threat, they're a threat to all humanity. Let's get the rest of the world on our side. It's not just a matter of national security. It's a matter of *global* security."

General Zemani was silent, but to his credit it didn't take long for him to decide.

"You've got your story, Ms. McPherson."

"Chad?" the telephone asked, in Linda's voice.

"Hi, Linda," Chad replied.

"General Z. said your car's fixed. Wanna ride? I'm going out to Pahrump now. And," she continued, "I've got some steaks."

The Air Force had been talked into fixing his car—well, actually, *Linda* had talked the Air Force into fixing his car, he admitted to himself—and it had been fixed for several days. He just hadn't been able to get out to Pahrump to get it.

"Well, thanks, Linda," he said.

"I owe you dinner, after that scoop you sent me. And I'm not a bad cook, they say. Bring an overnight bag, too. I won't be responsible for making you drive home on the Pahrump highway afterward!"

Now *that* was interesting. Should he take it at face value, or what?

"Sure, Linda, sounds good. And thanks."

"So," she said, "I'll pick you up in . . . about five seconds."

"Huh?" Chad said, just as the doorbell rang. He clicked the doorway monitor, and sure enough it was Linda.

"That was quick!" Chad said.

Linda laughed. "I figured you'd agree, so I called from the curb."

"Tricky. Is that a reporters' ploy? Catch 'em before they change their minds?"

She snorted. "It's pretty old hat. And anyway, someone who really doesn't want to talk to the press is not going to be locatable so easily."

"Well, some of us like to be located. At least by *certain* reporters."

Linda looked at him. "Well, Chad, I'm flattered!"

Chad replied, jokingly, "You should be, after what I've put up with from some of your colleagues!" He'd gone into the bedroom to throw a change of clothes together and shortly emerged with a small duffel bag. A golden glint then caught his eye. The jewelry rock lay on the top of the dresser. On impulse, he picked it up, too, and put it in his pocket.

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"Good luck charm, I guess," he said. "And it's too valuable to leave here."

"I *hope* it's a good luck charm! It's been a bit ambiguous so far."

They walked out the front door, Chad locking it behind him, and put his bag in the trunk. "So how goes with the journalist celebrity?" Chad asked as he slid into the passenger's seat.

Linda rolled her eyes. "Okay, I guess. It's been a bit of a whirlwind. Maybe I won't be just a stringer all my life. But let's save the heavy discussion for later. I don't want to deal with it when I'm driving. It feels too much like work."

After dinner, while the appetizing smell of the grilled steaks still lingered, they sat over drinks. Chad was feeling mellow, but Linda was obviously wanting to talk about something. She was fidgeting, staring at her drink, stirring it.

Chad said conversationally, "Well, they said I could go on up to Tonopah. The fallout isn't that bad, for some reason. So maybe I still have a job."

Linda sighed. "That's part of the problem."

"Huh?" Chad asked, startled.

"The low fallout. It's not something I've written about yet, but I'm going to have to soon. It's ironic. I've been the one advocating openness, and now I'm having second thoughts."

"About what?"

Linda continued as though she hadn't heard. "Not only has the DoD gone public, but they've invited in the Indians, the Chinese, the Russians . . . anybody who wants to do their own tests, in fact."

"Well, that's vindication for you!" Chad replied. "They'd never have done that if you hadn't pressured them."

"Well . . . I guess," Linda said. "But I'd give up feeling vindicated if I didn't get the impression they're terrified." She absently drew designs on the table in the condensation left by her drink. "Chad. There's no fission products. No *fusion* products. The good news is that radioactivity is minimal. The bad news is that the explosion was not any sort of conventional nuclear blast. It's not cold fusion, whatever it is. That was their big worry, and now they wish it was *just* that."

"What *can* it be, then?"

She was quiet for a minute. "They're thinking it's antimatter. Nearly all of the scientists think it must've had a store of antimatter for its power source. A few, though, are saying there's no way a stash of antimatter could have lasted so long, and somehow the device can . . . can 'invert' ordinary matter into antimatter. Apparently there's some theories that say that's possible. Some sort of quantum-mechanical resonance. And if *that's* the case . . ." she trailed off.

Chad said thoughtfully, "Well, the good news was that the fallout's not bad. But that's also the bad news, huh?"

"Well, I guess it's good news for your company," Linda said.

"For now, I guess. Unless some alien technology turns matter into energy directly. Then who's going to care about growing algae in ponds!"

"That's true, too, I guess."

"But there's some serious military implications right here on Earth, huh!"

"Well, yes, if there's an energy-conversion technology that uses ordinary matter. I can't decide if that's scarier than hostile aliens or not. And that leads into the other thing. There's now some rumors that other probes have been found . . . but no one's saying *anything.*"

"Found? How?"

"Apparently they give off a distinctive neutrino signature, and people started looking. There aren't many neutrino surveys of Earth's surface. The neutrino trap is new enough that no one's bothered."

They were silent for a minute.

Then Linda commented, "Oh, I saw C.J. She said you'd visited."

Chad tried not to sound defensive. "The seriously injured member of our party. *Someone* should have visited her!"

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Linda looked at him. "I'm remembering a line from Gilbert and Sullivan: 'The question is, had she not been a thing of beauty/Would he be swayed by quite so keen a sense of duty?'"

"Oh, Linda, you yourself said she's got brains, too." *But that's part of the problem,* Chad realized, too late. He shut up.

Linda didn't say anything at first. "Yes, she does, at that."

Chad sensed that it was time to stay quiet.

"And she's young and pretty," Linda continued.

"And she was seriously injured, Linda." Chad spoke again. "Apparently sometimes they can't even bring them back from that deep psychological trauma."

Linda sighed, "That's also true. I did a story on one of those people once. Another of Murthy's students, in fact." She paused again.

Finally she turned to him and said, "Don't leave me alone. Even if I don't have a long blond ponytail!"

"Pull!" shouted Linda. Two dark disks sailed out into the sky at the command. She raised the shotgun to her shoulder in one graceful motion and fired. One target vanished into a puff of dark smoke. She then turned smoothly and fired at the other target. It didn't dissolve into dust, but kept flying raggedly as a piece chipped off the side.

"Dead pair." Chad logged the score and then shook his head as he tallied up the totals. "Remind me never to be a clay pigeon anywhere near your place. Beat me by three."

"You know," Linda commented, "I've never understood why guns were supposed to be macho. They need skill, not raw strength. They're the great equalizer."

"Makes the merest slip of a girl the equal of a two-meter Viking with a battleax," Chad agreed as they walked back to the car. "Still, loud noise, recoil, smashing things . . . those are guy things, traditionally. And guns do them *really* well."

Linda chuckled as they cased the shotguns and loaded stuff into the car. Chad then asked her, "What did you find?" They'd driven up to Tonopah directly from Pahrump.

Linda shrugged. "Just some human interest stories. Where were you when the A-bomb went off? Not a few people think it's really a secret government project that got out of hand, so that makes for some interesting interviews, too. You've got a century of paranoia here. It's a weird love-hate codependency thing, since the gunnery range has also been a big part of the economy all this time. How about you?"

Chad shrugged in turn. "As you'd said, there was minimal fallout so the ponds are all okay. Of course, though, if revolutionary energy technologies are on the way it's all beside the point!"

"What about the claim jumpers that tried to waylay you?" Linda asked.

Chad snorted. "I checked with the sheriff, and they've all skipped town. The evacuation of Tonopah was an easy cover! With the emergency there wasn't enough to hold them on."

He paused briefly. "It's all moot now anyway—that vein was barely a hundred meters from ground zero. So at least there won't be anyone chasing us today."

"That's good," Linda said. "But I need to get back to Vegas. I need to get hold of General Z. again. Those rumors about some powers working on probes of their own seem to be true. But they're still not saying anything . . . much less letting U.S. investigators in."

"They won't let us in? We let *them* in!"

"They're playing that angle, Chad," Linda replied wryly. "But guilt trips only go so far in international relations!"

"Like personal relations, huh?" he quipped, and then was instantly sorry he had.

Linda looked at him. "You just don't

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give up, do you, Chad?"

"I'm sorry. I was just trying to joke."

Linda didn't say anything, but she shut the car door unnecessarily hard when she got in.

It's going to be a long quiet ride to Vegas, at this rate! Chad thought. They rode in uncompanionable silence, Chad regretting his big mouth but not sure what else to say.

At length he glanced in the rearview, and was struck with a thoroughly unpleasant feeling of déjà vu.

"Linda," Chad said urgently. "Grab your shotgun. Grab mine, too. Load them. And our shell vests."

Linda looked both startled and displeased. "What?"

"I've got a bad feeling about this car coming up behind us."

Linda looked in the rearview. "Why?"

"I've just had bad experiences recently with dark sedans with dark windows going way too fast on the Tonopah highway. Please."

She shrugged and did as he'd asked. Even as she did so, the sedan went out around them as though to pass, and then abruptly swerved toward them to sideswipe their vehicle. Chad reflexively braked hard, fighting the wheel to keep from being shoved off the road, and the other car shot ahead, scraping along the left side of their vehicle as it did so. Its brakelights flared in turn. *Here we go again!* Chad thought. This time the other vehicle was willing to crash into him. And this time he could see gun barrels pointed out the left side of the sedan, toward where he would be if he passed on the outside. Not to mention that there was at least one barrel pointed out the back, firing low. He could see chips of pavement explode up in front of them as bullets hit. A loud clang announced that at least one had hit their undercarriage. Clearly they were trying for the tires, though so far they'd come nowhere close.

Chad dodged to the right, veering onto the broad but rough shoulder off the pavement. Evidently taken by surprise, the other car didn't respond for a second, then it swerved back toward him. A metallic crunch and a further lurch to the right announced that they were trying to force him off the highway again. Chad clenched the wheel, managing to keep the car on the shoulder even through the bouncing. When the other car broke away, he stepped on the accelerator. He'd pulled about even with the sedan when out of the corner of his eye he saw the dark car swerve back toward them.

Suddenly the cab rang with a terrific explosion, as though a bomb had gone off by his left ear. Chad winced and took his foot off the accelerator involuntarily. Two more explosions followed in quick succession, ejected shotshell cases rattling off the inside of the front windshield. Chad then had the presence of mind to step hard on the accelerator. He saw with peripheral vision that the windshield of the other car had dissolved into fragments. Linda now withdrew her shotgun from where she'd fired it behind him, out the driver's window. Gray smoke wafted pungently from the barrel and open receiver of her gun.

Chad kept accelerating while checking out their pursuers in the rearview. The sedan was slowing down on the shoulder behind them. At least Linda looked to have disabled the driver, though how long that would last . . . well, just take advantage of the reprieve. That was *definitely* worth the ringing in his left ear from the muzzle blast.

He had another thought and called out, "Linda! Call Z. and tell him we're being attacked."

Linda nodded and took out her phone. She evidently had trouble getting through at first. Between driving and the ringing in his ear, Chad could hear neither what she was saying nor the response, even though she'd turned the speaker on her phone on so he could hear both sides of the conversation.

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Finally, she hung up. "Z. says it isn't them—which is good to hear!—and they're sending a helicopter as fast as they can. They'll also alert the sheriff, but we have to hold out meanwhile." On his gesture that he couldn't hear, she repeated the message, shouting it toward his right ear.

Chad checked the rearview again. He'd seen figures scrambling around the pursuing car after it had stopped. Presumably they'd swapped drivers by now, and sure enough, the vehicle looked as though it was starting to move again. And now the rear end of *his* car was starting to shudder.

"Linda, I think they hit a tire. The self-sealing has limits. We don't have time to change it, and our buddies look like they're coming this way again. They can certainly catch us on the main highway, and they won't make the mistake of coming within shotgun range again. We've got to get off the main highway. It worked for me once!" Chad laughed grimly with an edge of hysteria.

The highway berm had finally shallowed as the highway flattened out coming off the slope they'd been descending, but unfortunately, no four-wheel drive track conveniently appeared this time. "We'll just have to go off in the desert. I'll get us as far I can. At least they'll have to chase us on foot. And they now know we're armed; that should discourage them a bit." The back end of their car was shaking violently now, forcing Chad to slow down even more.

"Birdshot against semi-auto rifles isn't much of a match," Linda observed.

"Well, it's better than just rocks! Besides, if they wanted to kill us they could have just riddled the car. Like Bonnie and Clyde. So they must want us alive."

Linda looked grim in turn. "Us, Chad? It's you they want. I'm just in the way."

Chad had no answer to that. Turning the wheel as hard as he dared, he skidded them off the highway into the desert. The car bounced violently, so that he had to slow down even more, even as their pursuers closed the distance. He headed directly away from the right-of-way, dodging rocks and yuccas and Joshua trees, toward where he could see a sharp break in slope several hundred meters off the highway. There a low bluff rose, deeply cut by drainages that had eroded down through the surface above to the level of the near-plain where the highway lay. At least the surface here was desert pavement, a fitted mosaic of stones left behind when millennia of wind had blown away all the fine dirt. Although it was relatively smooth, it was broken up by large rocks, spiny bushes, and shallow gullies.

They ground their way toward that bluff, Chad hurrying as much as he could over the smooth areas. He tried to ignore the loud crashings and bangings beneath his vehicle, as well as its wild lurches, when he powered through the rough spots. Avoiding the yucca spines seemed less important since they already had a tire holed. They both could see, in the rearview, their pursuers starting to slow to a halt along Highway 95 at the point where they'd left it.

Finally, they were brought up short with a tremendous thud while trying to cross a shallow drainage. Chad floored the accelerator, to be rewarded by nothing more than engine whine. The car didn't budge.

"Well, we're hung up," he said. He shut off the motor. "Let's go!"

They both got out the driver's door to use the cover of the vehicle itself as much as possible. Carrying their shotguns, they ran hunched over toward the nearest point on the bluff broken by a drainage. They wove back and forth, hearing the whine of ricocheting bullets and smelling the dust they kicked up. The bullets' accuracy was so bad it reinforced Chad's notion that the idea was to capture them by scaring them into immobility. Of course, they could also be injured—or killed—by a stray bullet,

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even if it hadn't been deliberately aimed.

They ducked unscathed into the mouth of the arroyo. Right here the draw was deep enough to hide a standing person, so with some relief they stood up and started up it. The footing was tricky; like all dry watercourses in the desert, scoured intermittently by the rare thunderstorm, the surface was uneven, relatively flat places alternating with patches of water-tumbled rocks. At least it wasn't straight, the vagaries of running water tending to carve a sinuous course. That way someone couldn't shoot directly up the wash toward them. Once past the first big bend, Chad and Linda even dared to step up for a cautious peek over the side of the wash back toward the highway.

The other car was stopped on the shoulder, and four men, three with semi-auto military-style rifles, had closed most of the distance to where they'd abandoned their car. The fourth man carried an odd device—it looked like some sort of bazooka, with what looked like a compressed-air tank slung underneath it. Another attacker, evidently the leader, stopped, slung his rifle, and took out binoculars. He scanned the area where they were crouched, and must have seen something. He gestured to the guy holding the bazooka device.

That fellow dropped to one knee and held the tube up at roughly a forty-five degree angle. A black projectile shot out the end with an odd *foosh!* It was moving just slowly enough to follow with the eye, like a clay pigeon that had just come out of the trap. It rose in a high ballistic arc, and then started falling toward them.

Linda and Chad both fired at it reflexively. The object burst into a cloud of white mist. Chad and Linda looked at each other. "Some kind of knockout gas . . ." At least the wind was in their favor, as the cloud drifted back toward the shooters. Another projectile followed immediately, and they burst it too. "Dead pair," Chad joked to Linda, in a strained voice, but Linda wasn't done yet. She fired at the grenade shooter, too, for good measure. Although the range was too far for the birdshot to be much more than a nuisance, it could distract him. At least he staggered back momentarily and didn't fire his launcher again. Meanwhile, the rest of the assailants were scrambling to get out of the way of the mist cloud. One obviously got a deep whiff and went sprawling, his rifle clattering onto the desert pavement.

Abruptly, bullets spattered the ground in front of them, and they dropped back hastily, stung with rock splinters and smelling the faintly metallic odor of freshly shattered rock. Obviously, the assailants had not all been knocked out with their own gas. By tacit decision Chad and Linda turned and started dodging farther up the draw, keeping crouched over while they shoved shells into their guns' magazines. They could still hear the occasional bullets *sprang* and ricochet above them as they moved, but they were less frequent.

Chad finally stumbled over a stack of water-laid stones, and that break was the occasion for a brief pow-wow. "They won't chase us directly up the draw," Chad was saying, articulating what they'd already done. "They'd worry about ambush around every bend, and the range of their rifles wouldn't count for much. On the other hand, if we dawdle we'll be ambushed by attackers flanking us on both sides. And then we'll be pinned down while they can lob more balloons in at their leisure."

Linda merely pointed out the obvious. "We've got to keep going, then. And hope this little gulch doesn't peter out."

Which before too long it was threatening to do. The draw was becoming shallower, its sides lowering as it came up to the old land surface into which it had been incised by millennia of erosion. Finally, it was too shallow to continue in on foot, however much they crouched. If they wanted to stay com-

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pletely hidden they would have to continue on hands and knees. The desert was much too open to move without being seen. Only the occasional Joshua tree gave any cover.

At least they now heard the very faint *beat-beat-beat* of a helicopter.

Chad dropped to the ground, motioning Linda to do the same. "This isn't going to work, Linda," he whispered. "If we crawl we'll just get exhausted, and they'll pick us off because we'll be so slow. Let's double back. They can't see us down here, and that will buy some more time. We should also spread out, so one balloon doesn't get us both."

Linda nodded. They wiggled around and started back the way they'd come, now moving very slowly and cautiously, about ten meters apart, listening intently. They hadn't heard any shots in some time—evidently their pursuers had realized it just gave their positions away. Chad stifled a sneeze from the dust he stirred up as he scuffed along. At length he could get to his feet again, although staying hunched over.

Chad thought he heard a faint noise. He stopped, holding back his hand; Linda dropped back into cover. A flicker out of the corner of his eye caught his attention—a flying black sphere. He turned and fired at the balloon reflexively, but it was too close. He smelled a sharp chemical odor as his shot burst it in midair, and then the world started spinning. "Where is that damned chopper?" was his last thought before everything went black.

Chad woke up disoriented, with a headache like a construction crew working between his ears. He winced and groaned, nearly overcome with nausea, then hesitated as memory flooded back. He thought about feigning sleep again, but realized it was too late.

"Chad! You're awake!"

With relief Chad recognized Linda's voice. Surely she wouldn't sound so chipper if they'd been captured. He opened his eyes, to register a blurry image of a strange woman in nurse's garb. And he was lying in a hospital bed. The nurse addressed him. "Chad, this'll get rid of the nausea." He felt a sting on his arm. "You were hit with Zalin. It doesn't cause any long-term harm, but you feel very sick when you first wake up. Now lie back for a while."

He obeyed readily. It was like a really bad hangover. Maybe the room would stop spinning if he shut his eyes again. He dozed off.

After what seemed a moment he opened his eyes. The nausea was gone—in fact, he almost felt refreshed. He saw Linda again, but instead of the nurse, General Zemani stood there.

"How are you feeling now?" he asked.

"*Much* better," Chad said in heartfelt relief. "Thanks for sending in the cavalry. I thought you were going to be too late there."

Zemani gestured at Linda, "Thank your companion. She kept them busy. She wounded a couple, in fact."

"I don't think they took a woman seriously, even one with a gun," she said. "I stayed under cover, and then hit 'em in their gun hands as they ran up when they saw you go down. Then they couldn't hold onto their rifles anymore. Even if the shot just stung. In fact, the guy with the launcher just threw it away and fled. Then I went over and kicked the rifles away and told them to stay down. I racked some more shells into the magazine just for effect. They didn't feel like doing much else by then. And about then the helicopter landed."

Chad noticed for the first time that Linda had a bandage along her left arm. "You got hit!"

"Only spattered with some rock chips," she said. "I stayed well down. Those guys couldn't hit the broad side of a barn anyway. The shotgun was actually better at close range."

Zemani picked up the story. "The one assailant who wasn't either wounded or knocked out with their own gas was

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picked up by the sheriff on Highway 95. A car without a windshield was pretty obvious! So all the suspects are in custody. A couple are hospitalized with quite a bit of subcutaneous birdshot."

"If I'd had buckshot rather than birdshot they'd've been *dead,"* Linda remarked with some heat. "I was playing for keeps at that point."

General Zemani chuckled. "Yes, it's funny how being shot at does that to you."

Linda abruptly looked startled and then a bit chagrined. She stared directly at Zemani, "I guess you must have firsthand experience with that sort of thing." It wasn't a question.

Zemani replied, with an uncharacteristic overtone of amusement, "You could say that. But we don't have time for war stories now." He turned back to Chad. "Mr. Gutierrez, it appears the party chasing you was working for a foreign power. Right now we're not sure which one, because they've hidden the source of the money pretty well. They hired some local talent to grab you." Zemani, looking more serious, continued, "You're very lucky they cut corners like that. No way trained special forces would have blundered the way those thugs did. Anyway, our apologies. We had no idea that you were perceived as that valuable. So we're giving you a couple of bodyguards. Please don't try to give them the slip. I don't think you want to meet the people who tried to nab you."

"Not much chance of that, after this latest go-round!" Chad said emphatically. He shook his head, and then wished he hadn't. "I guess I've gotta stop going to Tonopah!" he managed to joke weakly.

Zemani actually grinned again. "Good for you! Joking helps. We also have some new information. Another of the problematic"—Chad noted he avoided saying "alien"—"devices was found. Well, on careful probing with neutrons the device proved not to contain a reservoir of antimatter. Hence it is incapable of blowing itself up, at least according to the majority of the scientists. So we are now investigating it more aggressively." He held out a small disk to Linda, "Here's the press release and background information."

Linda accepted the packet with a query. "For immediate release?"

"For immediate release," Zemani confirmed. "We've also put the information up on our Web site."

"Well, if it's just an empty antimatter reservoir maybe I still have a job," Chad said. "Total matter conversion would have made us as obsolete as buggy whips."

Zemani's cell phone went off. Surprised, he answered immediately, "Zemani here."

A pause, and then an exclamation, was followed by, "That *does* change things, doesn't it? Thank you for letting me know, Colonel."

Zemani flipped the phone closed. "I was only supposed to be interrupted if it was very important. And it seems to be. That was Colonel Toth. There's been a report of a nuclear blast in far western China. It's been verified by satellite, but there's no official word from the Chinese. There's a highly unofficial rumor, though, that after detecting no antimatter the Chinese team also went in aggressively, as we did. And *then* the thing blew."

Zemani stuck the phone back into his pocket. "If that's true, we're back to square one," he said quietly, almost to himself.

"Are there other devices under investigation, General?" Linda queried mock-innocently.

"I'm sorry, Ms. McPherson, I can't comment on that now." As he strode out of the room, Zemani beckoned to a figure who'd appeared in the doorway. "You remember Mr. Braun." Chad had sat up in the bed, and shook hands when Braun walked over. "Mr. Gutierrez needs to be driven home, and he needs a new loaner car. Ms. McPherson, you

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may follow them if you wish." It sounded almost like an order.

Linda was clearly torn. She turned toward Chad momentarily, and then turned back, looking at Zemani. "Please keep me posted, General!" Linda finally said to Zemani's retreating back.

Chad set his margarita down for a moment on the patio table. Linda sat next to him. It was nice to feel okay again; that antidote they'd given him had finally worked. The evening was pleasant and still, with a crescent Moon looming over the Spring Mountains. Braun and his partner weren't obtrusive, either, spending their time in the nondescript van parked on the street. Chad drained his drink. "I'm grateful we're okay," he commented. "That's a lot closer call than I'd like."

Linda nodded. She'd written up their experiences first thing—"I don't want to be scooped on my own story," she'd said—but reaction had set in with her, too. "Yeah, I know. One firefight in a lifetime is plenty." She snuggled closer while he wrapped his arm around her shoulder. "You know, I've always tried to be prepared for something like that," she said. "But the real thing . . ." she shook her head. "At least I came through. But I don't want to have to try again!"

Chad chuckled shortly, spinning the ice in his glass with his free hand. "I once heard an adventure described as a very unpleasant experience that happened to someone else. Of course, now I get a chance to worry again about my job. Who's going to need fuel from fatty bugs if you can convert matter directly into energy?" He paused. "Have you heard anything more about that?"

Linda shook her head. "I keep calling him, but Zemani keeps palming me off with promises. And nobody else knows anything at all. Something's got to happen, though. If nothing else, nuclear explosions are hard to hide . . . what's *that?*" she trailed off in surprise, looking at the Moon. A brilliant point had appeared in the nightside crescent: between the horns, where no star should be. They stared transfixed, watching the point of light wax in intensity and then begin to fade after a few minutes or so.

Chad and Linda looked at each other. "Do you think . . . ?"

"Yes. It was," Chad said. "Get on the horn to Zemani. Maybe he can talk to you now!"

Linda did just that, flipping on her phone's speaker so Chad could hear too. Bypassing the routine greetings, Linda asked about the lunar light.

"Yes, we just saw it, too. Preliminary indications are that it's a nuclear explosion, but no details yet." Zemani paused, and they could hear muffled conversation. "What's even worse is that we're picking up reports of other explosions with nuclear signatures around the world. According to the gamma-ray data from the monitoring satellites, anyway."

"Do you know where they are, General?" Linda asked blandly.

"We have fixes on just a few at this point. In the Antarctic, off the Ross Ice Shelf. The Bering strait—that one has triggered a tsunami alert. . . ."

Zemani stopped and changed the subject abruptly. "Mr. Gutierrez, your safety could be a matter of national security, and I'm ordering you to Nellis. We have VIP quarters where you can stay till this is resolved. Ms. McPherson, you may come along too if you wish." The phone clicked off.

They heard a noise behind them, and—just as Chad had figured—there stood Braun and his partner. "We can help you pack some things quickly, Chad," Braun said. He'd established first names, at any rate. "But we need to get to Nellis as soon as possible."

He grabbed the jewelry rock off the dresser on his way out. *Just like a kid with a rabbit's foot,* he thought, amused at himself. But it *was* too valuable just to leave lying around.

Though he was having doubts about

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its being a good-luck charm.

Linda was driving, Chad's car being *again* in the shop, and they were following the bodyguards' car. They were quiet for a minute.

"What's going on?" Chad spoke for both of them.

"Well, let's think about it. A couple of the objects were being investigated intensely and blew themselves up. First the one at Gold City, and now the one in China. In fact, more than a couple were being investigated intensely, because there was that new one that Z. told us about. Maybe it was supposed to blow itself up, too." Linda was thinking aloud.

"So the one Z. told us about was a dud." *Chad made it a statement.*

"Undoubtedly. We already knew the devices looked pretty dilapidated."

"And probably there were others being investigated we weren't told about. So maybe—oh, half a dozen objects felt themselves under investigation, and no doubt communicated that. To each other, and maybe to their handlers."

"Maybe we crossed some sort of threshold—now the order has gone out that all devices are to self-destruct. Except that duds can't."

"Sounds as reasonable as anything. Tell it to Z."

"Of course, this means the wild-eyed scientific dissidents were right," Linda said. "The devices can blow themselves up all by themselves. No antimatter needed."

They pulled up behind Braun and his partner at the gate to Nellis. Braun must have said something, because they were waved through right after him.

Chad woke up, momentarily disoriented. He was still not used to the VIP quarters at the base—and still bemused he was thought important enough to deserve them. He was getting antsy, too. Even though he'd finagled a "liaison for new energy technologies" position, he felt out of the loop in his company . . . not where you want to be when your product looks as though it's going to get utterly blindsided by new technology.

And while he felt like a fifth wheel, Linda was in her element. Although hard facts were still few, it wasn't difficult to fill interviews with the seething rumors about the antimatter converter—a QM device that could "resonate" matter into antimatter.

He clicked on the webster, to the nonpublic news site they'd found just by surfing. Apparently no one had thought to turn it off even though the room's occupants presumably weren't authorized. Chad and Linda hadn't mentioned it; Linda had been careful not to let slip information she could have gotten only from it, *but she certainly used it to guide her* questioning.

Chad idly clicked on the "latest alerts" banner. He came bolt awake as he read it. "SpaceGuard indicates >1000 objects on Earth-intersecting trajectories." That "greater" sign was a shocker: it indicated that the actual number overflowed the capabilities of the system. Quickly, he paged down and read the alert, couched in a telegraphic style nearly two centuries old. Within the orbit of the Moon . . . moving at speeds of >20 klicks a second . . . all objects small, roughly 10 meters . . . estimated arrival time(s) 2 hours . . . azimuthal distribution 360° . . . inclination distribution ±90° . . .

"Linda, look at this!"

"Hmmm?" She stretched sleepily.

"Swarms of objects are coming into the Earth out of space. From all directions!"

As his words penetrated, Linda woke up as though stung. She sat up, her hair flying in all directions, to read the alert he'd just seen. She was just leaping out of bed when her phone rang. She turned on the speaker so Chad could hear.

It was Zemani. "Earth is being attacked." He said it baldly and matter-of-factly. "Ms. McPherson, I'm sure you'll want to come down to the Global

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Overview Room. You may come too, Mr. Gutierrez. Braun will escort you. Zemani out."

Linda and Chad looked at each other. Then came the knock on the door. Chad checked; sure enough, it was Braun. "Just a sec," Chad said. "We'll be out in a moment."

Chad could have appreciated the Global Overview Room more under different circumstances. In the center an exquisitely detailed hologram of the entire Earth seemed to float in a dark void. Banks of VR consoles, with elaborate heads-up interfaces, surrounded the central display. They could be focused in on any part of the Earth or nearby space to give expanded views for detailed examination. Or for targeting. In fact, electronic overlays of all sorts of information could be made on the Earth and its surrounding space: cities, weather patterns, aurorae . . . and extraterrestrial objects.

That last was the focus now. Near-Earth space was illuminated with white sparks, a malevolent fuzz enveloping the planet like an attacking insect swarm. Chad could see the sparks moving, on looking closely. They were all incoming.

"General, what can we do about an attack from space?" he asked.

"Not a lot, unfortunately," Zemani said. "SpaceGuard is designed for at most a handful of incoming rocks on ballistic trajectories. Obviously we'll use it, but it's a drop in the bucket."

Even as he spoke, some small white puffs blossomed among the sparks. They dissipated without leaving any obvious gaps in the swarm, like a hand waved through a cloud of mosquitoes.

"We also have kinetic energy ballistic missile defense platforms in low-Earth orbit which we're trying to retarget. Basically, they're shotguns—they throw out a bunch of pellets and let the target run into them. Unfortunately, they're intended for blocking Earth-based ballistic missiles. These objects are not only coming from above rather than below, they're coming in a good five times faster."

Linda had had her recorders running and was taking notes furiously. "How soon will we know whether they worked, General?"

Zemani looked at something on the display. "In about thirty seconds, when the incomings get to the level of low-Earth orbit." He expanded the view on the console where he was standing. They watched some of the incoming sparks dodge incredibly as they passed through the ABM defenses. Evidently they were not just on ballistic trajectories, but had staggering propulsive capabilities that must have corresponded to hundreds of g's of acceleration.

A few sparks flared and died, evidently taken out by the defenses. But most just came on through.

Zemani sighed. "Well, we got a few, but nowhere near enough. Now we just have to hope. And pray."

"General," someone said. "There's an object incoming, targeted for us, within measurement error. Impact in roughly . . . fifteen seconds."

Chad cringed. He knew it was silly—if it was going to detonate he'd never know—but ancient instincts ruled.

"Five, four, three, two, one . . . *now!*"

Nothing happened.

Chad gleefully noted that everyone else had cringed, too. "It was a dud. *Another* dud," somebody observed, in relieved tones.

"Damage report?" Zemani snapped.

"Yes, general." One of the duty officers was clicking and peering at data on her console. "Um . . . there's a crater about five meters across in a parking lot about five hundred meters north."

The sense of anticlimax was palpable. "We were lucky," Chad breathed. "Very lucky."

Linda said, "Even so, that crater seems awfully small. SpaceGuard claimed those objects were ten meters across!"

Toth responded, "Most of the bulk

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would have been heat shields. No way you're going to punch through the atmosphere at those kinds of velocities without shedding most of your mass. The actual payload could have been quite small—particularly if it was supposed to turn into energy when it arrived."

Their attention turned back toward the display. Sparks were vanishing as they encountered the Earth itself. Someone else announced, "They're not all duds, General. We're getting reports of sporadic explosions. A tsunami in Chesapeake Bay, off Annapolis. Detonations in Boston . . . a detonation in Shanghai . . ." the duty officer continued reading the heads-up display. " The Dnieper dam in Russia. . . . Now we're washing out. I'm getting lots of static. EMP must have knocked out some of the telemetry."

The news was sobering, after their giddy relief. "Not everyone was lucky, then," Chad commented unnecessarily.

"They apparently targeted everything above some threshold size that looked technological," said Toth. "Cities, dams, canals . . . you name it."

The main display still showed Earth. The swarm of surrounding sparks was gone, but now known nuclear detonations were shown as little red dots. Chad thought they looked like hot coals. New ones kept appearing as the data updates managed to trickle in. There were already way too many of them for comfort. He shuddered again at their narrow escape.

Chad was grateful to be alive, if still a bit incredulous. He and Linda were sitting in on the impromptu discussion that had arisen after the attack. It was made the more freewheeling by sheer relief. Later, no doubt, there would be formal press conferences and a more measured flow of information. But for now everyone was babbling, and Linda was taking notes for all she was worth.

"No question Earth survived by dumb luck. If *all* those warheads had caused antimatter explosions there wouldn't be anything bigger than a bacterium left alive. But something like 99 percent didn't work," Zemani was saying. "So these—aliens, I guess we can say—were playing for keeps. They were quite willing to sterilize a world, or at least obliterate all higher life forms, if they saw even a hint of a threat."

Chad was amused that Zemani finally used the "A" word.

"Nice people, sir," Toth said. "We knew they didn't care about collateral damage. Now we know why."

"Now what?" Chad said, articulating what was on everyone's mind. "Are they going to send another wave of attacks, from Alpha Centauri or something?"

"We haven't seen anything. Not that it would do any good if we saw something. Our only hope would be that any new attackers will be as decrepit as the ones in the Solar System."

"Particularly if they have QM communications, as you'd suggested previously, sir," Toth commented. "They'll know right away."

"Of course, that doesn't mean they can *get* here right away. Even though their warheads obviously had some highly advanced propulsion. They sure got here quickly for being stationed in heliocentric orbit. And the way they dodged . . ." Toth suddenly looked uneasy, "Of course, I suppose we don't really know *where* they were stashed, at that."

"So maybe they *could* have come from Alpha Centauri, for all we know?" Linda asked, her recorder still running unobtrusively.

"Probably not," Zemani replied. "Why bring the warheads in from space in that case? Why not just quantum-teleport them directly onto the Earth?"

Toth nodded slowly. "Good point, sir. Another one in our favor, maybe."

"Since so many of them were duds, why did their targeting work in the first place?" Chad asked no one in particular.

Toth answered, "Actually, that's easy

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to understand. The antimatter conversion somehow relies on large-scale quantum coherence. That's going to be the first thing to go wrong." He continued thoughtfully, "At least it shows their technology isn't supernatural. The thing that we'd expect to fail first, did fail first."

Linda mused, "Maybe the aliens don't even exist anymore. The disrepair of their equipment sure suggests they haven't been maintaining it. A century ago a physicist named Enrico Fermi wondered why there were no obvious aliens around. Maybe the reason's that somebody's been policing the neighborhood. Maybe we're latecomers fortunate enough to arise when the policing is decaying. Like those old movies where the booby traps protecting the ancient tomb have fallen apart."

"They might even have destroyed themselves by now, between their paranoia and their easy antimatter conversion," Chad added.

"We can't assume that, though," Zemani said. "Even if only a handful survive, they're as far beyond us as nanoelectronics is beyond Faraday."

"So what do we do?" Linda demanded. "At this point trying to defend ourselves would be like lining up the war canoes in front of an aircraft carrier."

"Obviously, we have to figure out their technologies. We have their duds to take apart. That should help a lot. We're looking at a crash research program. Programs, plural."

Chad observed, "There's more than just the military implications. It will revolutionize energy, for one thing. Everything we're doing now is going to be obsolete."

Linda said, "But the military implications, unfortunately, are not just against aliens. That whole issue is wide open again. The first power on Earth that figures out the antimatter conversion will have a staggering advantage. Maybe we'll blow ourselves up before the aliens even have a chance to come back."

Zemani nodded. "Yes, we'd thought of that, too. It's going to be very tricky. Of course, if the aliens had wanted to convince humanity it had a common enemy, they couldn't have chosen a better way. So maybe that will help."

Chad looked at the holo of Earth hanging in space. "We'd better hope so, huh?" ■

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Science Fact

I Couldn't Read You, E.T.

Henry Honken

Alien languages may be a lot harder to learn than you'd think, considering anatomical differences and the hidden complexities even in human languages.

Introduction

It's finally happened. We've found them or they've found us. Strange as something out of a hashish dream, they're like nothing we've seen or imagined, not at all what *Encounters of the Third Kind* has taught us to expect. But they're intelligent, have a language and culture, and can travel between the stars. It's a moment without parallel in human history, taut with danger, ripe with promise. In order to guard against the danger, however, or exploit the promise, we have to communicate and there's the rub.

How do you communicate with a being from a totally different evolution?

Aliens have been a favorite theme in science fiction since at least the time of Wells and hundreds of stories have been written about the first encounter with intelligent nonhumans. Often enough, authors have avoided dealing with language problems by supposing the aliens have a magic translation machine or use telepathy or already speak our language, learned (God help us) from our radio broadcasts. But the situation may not be that simple. After all, how many of us have managed in college to master even another human language?

Nevertheless, in many science-fiction stories, humans learn an alien language with no more difficulty than they would experience in mastering one of the more forbidding human languages such as Hua, Tsez, Salish, or Dyirbal[1]. And aside from advanced technology—teaching machines and the like—they learn it in the same way they would learn Tsez or Hua: by listening to alien vocalizations, matching them to concepts, and trying to reproduce them.

Many scientists believe that the carbon-based protoplasm used by living creatures on Earth is the universal stuff of life and it may be that the languages we humans have invented are also cut to a universal pattern. But there are other possibilities and in the remaining three

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sections of this article, I would like to explore one that hasn't been much used by science fiction writers (or taken into account by SETI scientists, for that matter): that we might be able to hear the sounds our alien informant makes, but not process them.

In section two, we will look at some interesting data from animal studies. Section three will present some current theories of how speech is produced and perceived. And in the final section, I will consider some of the possibilities.

Aliens We Know

We can't study alien speech directly, but we do have access to nonhumans in the form of the other animals. Many of these communicate by sound and both birds and mammals have a vocal tract. Since, unlike human language, animal calls seem to be both instinctive and non-semantic, we might doubt we can learn anything about language by studying animal call systems. As it turns out, we can learn a great deal.

There have been several attempts to teach chimpanzees to speak a human language. In one of these, the chimpanzee learned to articulate three words—"momma," "poppa," and "cup." More recent attempts to communicate with nonhuman primates have made use of gesture languages like ASL (American Sign Language). At a minimum, these studies provide evidence that apes can learn to use symbols to convey information.

If so, this presents us with a paradox: some birds can imitate human speech without understanding it[2], while apes seem to understand human concepts, but can't produce articulate speech. To resolve this paradox, we have to take a closer look at primate "languages."

All primates have call systems. Traditionally, calls were thought of as wholly instinctive, like human cries of pain, but the research of primatologists over the last decade has shown that this view is too simplistic.

One common type of call is the alarm call, analogous to a human scream of fear. In the traditional view, an alarm call is an automatic reaction to danger and does not carry any information. But Tom Struhsaker of the New York Zoological Society, in field studies carried out in the '60s, noted that East African vervet monkeys seem to have three distinct alarm calls, each cued by a different predator.

This suggested that the calls conveyed information as well as emotion. Dorothy Cheney and Robert Seyfarth, who also studied vervet monkeys, were able to confirm this in their investigations. They recorded the three calls and played them from a concealed loudspeaker. In each case, the monkeys reacted appropriately to a given call; a leopard call sent them scrambling into the trees; an eagle call made them look up or run down from the trees; on hearing a snake call, they stood up and peered into the grass.

In other field trips, Cheney and Seyfarth studied a call that earlier researchers termed a "contact grunt," a harsh sound like clearing the throat, used in a variety of social situations. Although all vervet grunts sound more or less alike to human ears, the researchers discovered that vervets distinguish four grunts, each with a different meaning. The vervets vocalized when approaching a dominant animal, when approaching a subordinate, on seeing a member of the troop move into an open area, on encountering another vervet troop. Moreover, when recorded and analyzed, each grunt proved to have a different acoustic structure.

In one set of experiments, Cheney and Seyfarth recorded some thirty calls from one female vervet and analyzed them in terms of sixteen acoustic features such as length, frequency peaks, etc. They then recorded 216 tokens[3] of all four types of grunt from thirteen other individuals. They found that in over 80% of their data, a particular acoustic structure was associated with each so-

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cial context. That is, where humans hear a single, undifferentiated grunt, the monkeys are telling us by their behavior that they hear four and they react to each one in a different manner.

Other primates make similar distinctions. For example, Steven Green performed experiments in which Japanese macaques were rewarded for their ability to distinguish between coos (described in Cheney and Seyfarth, 1990: 123). There are two varieties of coo in the macaque call system: smooth early highs have an initial peak and fall abruptly while smooth late highs rise in pitch and peak near the end.

When the subjects were rewarded for discriminating coos by peak position, Japanese macaques performed better than control species (other macaques and vervets). But when the tests involved discriminating initial frequency, Japanese macaques were slower than other species. Moreover, in all these tests, Japanese macaques showed a right ear advantage, just as humans do in language tasks[4].

In addition, like vervet grunts, coos all sound similar to human observers. As Cheney and Seyfarth point out, "the size of vocal repertoires—in primates or any other animal—cannot be assessed by the human ear alone."

Some ethologists have concluded that the more intelligent primates can understand some human concepts and even learn a language based on gesture (though many linguists remain skeptical), even though they can't learn articulate speech. Although this is often blamed on the inadequacies of the primate vocal tract, we should keep in mind that parrots and mynahs, with their very different vocal apparatus, can produce an accurate imitation of human speech. Instead, the inability of apes to learn a human language seems to reside in the nature of the neural programming that underlies both primate call systems and human speech.

* * *

The Perception of Speech

Human speech is not simple. Instructions to produce a word originate in the brain in the form of neural currents. These in turn produce movements of the vocal tract. The muscular movements generate sound waves, which travel to the ear of the listener, where the whole process is reversed—sound wave to movements of the eardrum to neural impulses.

Two factors complicate this process. First, the various events take place at vastly differing speeds. A nerve impulse moves at about 150 to 300 ft/sec; a sound wave at 1,100 ft/sec. The vocal tract, made up of flesh and bone, cannot move with unlimited speed and precision.

Secondly, the movements of the vocal tract overlap. In a word like "gab," for instance, the gesture of the lips that forms "b" takes time to happen. As the lips close and the shape of the vocal tract changes, the sound of the vowel likewise changes.

The vocal tract resembles a woodwind such as a bassoon or saxophone. It is an inverted L-shaped tube (Figure 1) with a pump (the lungs) at the lower end to produce a moving current of air; the upper end acts as a filter. The vocal cords function like the reed in a wind instrument and we can further modify the sounds by changing the shape of the tube.

In Figure 1, A represents the oral cavity, B the nasal passages, and C the pharynx, the back wall of the throat. The lungs are in all languages the primary initiator of the necessary current of air and the larynx and vocal cords act both as a sound source and a valve. Most speech activity takes place in the oral and pharyngeal cavities, while the nasal passages when the velum (v) is open act as a resonating chamber imparting to sounds the quality known as nasalization. The right-angle bend in the vocal tract (quite different from the shallower

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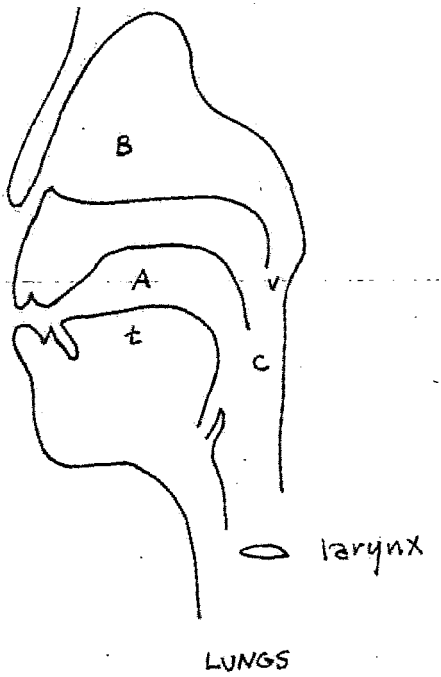

Figure 1. Vocal tract. Suggested by diagrams in Ladefoged, 1975, and elsewhere.

bend in newborns and apes) fosters stable, highly perceptible vowel sounds. The movements of the tongue (t) and lips (which linguists refer to as gestures[5]) impede and direct the vibrating stream of air in various ways, which in turn modulate the sound, produced.

Several types of modulation are possible. The air current can be blocked completely as happens when the lips are closed to produce a *p* or *b*-like sound. Or the channel can be narrowed to generate audible friction like that at the end of "hiss" or "hush" or in a German *ach*-sound. The tongue or lips can vibrate to produce a trill, or the tongue can be closed on only one side, allowing air to escape round the other as in an *l*-sound.

If we look at the speech act in more detail, it seems to take place in a series of stages that translate a sequence of distinct abstract representations somehow represented in the brain and nervous system of the speaker into a continuous flow of speech as in Figure 2. And speech can flow very fast indeed, an estimated fifteen phonemes per second or more. How do human beings achieve what Liberman calls "high-speed performance with low-speed machinery?"

The optimum vocalization produced by the speech apparatus, the type which is most common in the world's languages, can be represented as CV(C), that is, an initial burst of noise (consonant), followed by a musical tone (vowel), which in some languages may be followed by a second burst of noise. In all languages, words are made up of sequences of one to five or more of these units.

To take examples from English: "cap," "sap," "map," "apt," "pack"—all of these but "pack" are written with three letters and the linguist would agree here with

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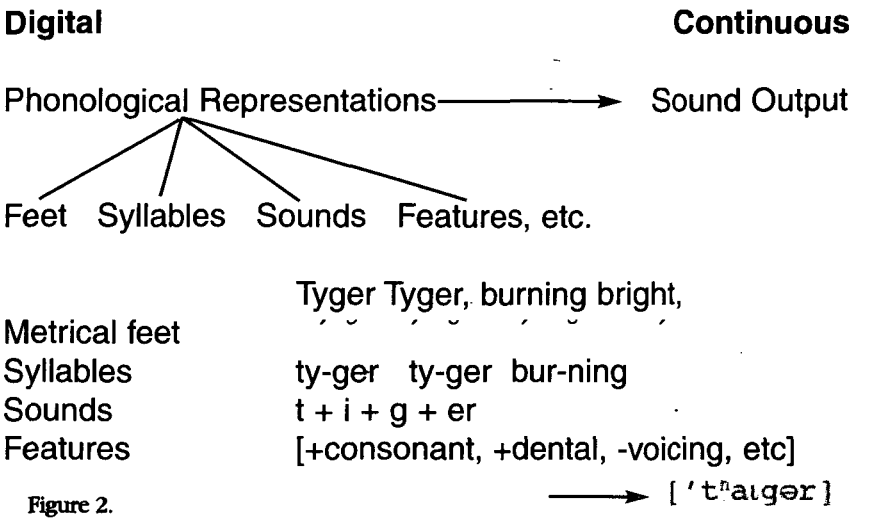

Figure 2.

the layman's opinion that they all consist of three distinct vocal gestures. Nevertheless, the initial gestures of these words are not all perceived in the same way. The initial *m-* and *s-* of "map" and "sap," a hum and a hiss, are clearly identifiable even without any vowel attached. But the *p* and *ck* of "cap" and "pack" are different.

The gesture of the lips that produces the *-p* at the end of "cap" is visible to the listener, the *-p* is written with a character of its own, we can hear the difference between "cap" and "cat," etc. so we naively assume that there is a discrete sound *-p* of the same order as the final consonants of "cab," "can," "cash," "car." But if we think about it, we will realize that the sound made by simply bringing the lips together is not likely to be audible to normal hearing. What then are we perceiving as *-p?* It is only within the last sixty years that linguists have been able to answer this question.

So far we have been talking about the way in which speech sounds are produced. But communication implies a second participant, the listener. Once the speech sounds have been generated, how does the listener read what the American linguist Charles Hockett[6] calls the "continuous muddy signal" of speech and transform it back into information?

Late in the 1940s, the study of the physical aspect of speech improved dramatically with the invention of the acoustic spectrograph, which produces a physical representation of a speech sound. Figure 3 shows acoustic spectrograms of the words "bab" and "gag" pronounced at normal speed (fast). The vertical axis represents frequency in Hertz and the horizontal axis duration in milliseconds. The vibrations of sound waves show up on the spectrograph as vertical striations. At frequencies where energy is concentrated, the striations form dark bands called the formants of the vowel, analogous in some ways to the harmonics of a musical tone. In the figure, there is a formant roughly every thousand Hertz. The formants are not stationary, but change in ways that depend on the adjacent consonant.

The most important formants for perceiving speech are the first, second, and third. You can hear the second formant; if you whisper the vowels of the words "keyed," "kid," "Ked," "cad," "cod," "cawed," "could," "cooed" in sequence,

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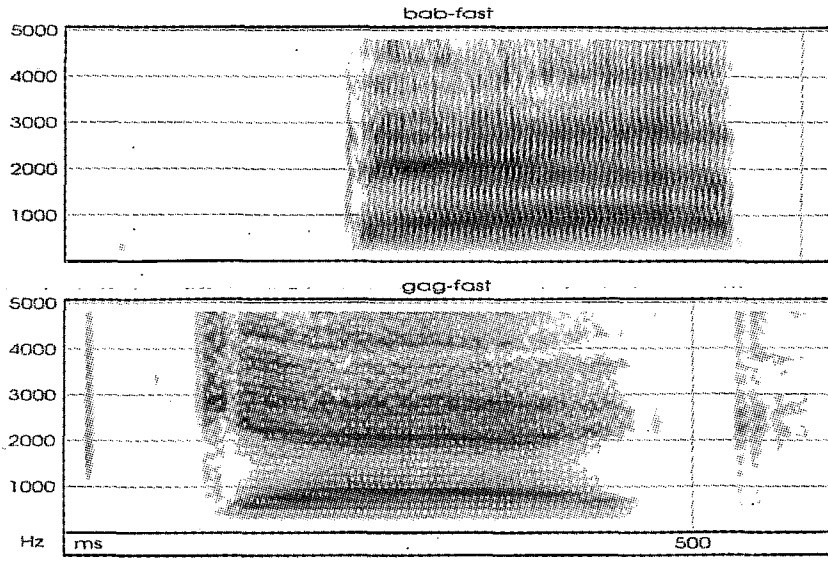

Figure 3. Acoustic spectrograms provided by Amanda Miller-Ockhuizen, used by permission.

you will perceive a steady drop in pitch. The twelve-year-old Isaac Newton noticed this over three hundred years ago when he wrote in his 1665 notebook "The filling of a very deepe flaggon with a constant streame of beere or water sounds the vowels in this order w, u, ω, o, a, e, i, y." In Newton's example, of course, the vowels are in the opposite order and the pitch of the second formant is steadily rising.

Some speech sounds are perceived in the same way as non-speech sounds: steady-state vowels, friction sounds like *s* and *f*. But vowels are seldom steady state at conversational rates of speed. Instead, the formants change rapidly as the vocal organs move from sound to sound. And surprisingly, these formant transitions are not particularly consistent. Instead, our auditory impression may be quite different depending on the vowel so that the same acoustic signal may be heard as *p* before the vowel *i* and *k* before the vowel *a*.

Vowels are resonant; other sounds such as fricatives may have characteristic bursts of noise. But many consonants are perceived primarily by their effect on a neighboring vowel. Look, for example, at the spectrogram of "bab" in Figure 3. As the lips open and close, the formants show a rise and fall in frequency and in the figure you can clearly see the curve upwards and downwards in the second and third formants. On the other hand, in "gag," the *g*'s cause a narrowing of the distance between the second and third formants.

What this means is that we do not perceive speech sounds as a linear series of discrete symbols like Morse code. Instead, each sound contains information about other sounds in the syllable. Even though we can represent the abstract structure of a word as a string of phonemes, in the real acoustic signal these blur together into a single gestalt. Like Green's macaques, humans are predisposed to pay attention to certain features of the speech signal while ignoring others and perceive the vocalizations of their own species in a different way from other sounds.

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If we record a message in Morse code, we can cut the tape between signals. If a word such as "gag" were a series of distinct sounds as it appears to be from the spelling, we should be able to do the same thing. Suppose we record "gag" on audiotape, cut and splice the tape at some point, and replay it. We will discover that no matter how close we cut to the beginning of the word, we won't be able to isolate the initial consonant. Even if we erase from both beginning and end, subjects will still hear the word "gag" when the tape is played back until so much is erased we hear only noise.

Conversely, if we hand-paint a spectrogram and play it back, we can produce an artificial vowel sound. Depending on how we curve the formants, subjects may report hearing a consonant before the vowel. A low beginning for the second formant suggests *b* while a very high beginning will sound like *g* (what is meant here is the "hard" sound of *g* in "gab," "goose," "gull").

As the experimental data makes clear, information about the sounds in a syllable is not localized, but is scattered throughout the syllable. We perceive a given vowel by the frequencies of its formants and perceive many neighboring consonants by means of changes in those formants. Would alien languages have this property?

I would guess that languages using the vocal channel will have five properties: audibility, salience, redundancy, high modulation, and coding.

To communicate, we must be heard. All vocal languages must have some sounds that function like vowels or resonants (sounds like *m, n, l,* etc.) and carry a great deal of acoustic energy. Sounds must also be salient; that is, stand out from their neighbors. Hissing and rasping sounds like *s*, the German *ach*-sound, and the clicks used in Khoisan languages are highly salient.

In a writing class, you lose points for being redundant, so it may seem strange that redundancy is a necessary design feature of language. In fact, SF writers are fond of inventing languages like Heinlein's Speedtalk (in "Gulf," *Astounding*, Nov-Dec 1949, reprinted in *Assignment in Eternity*, Baen, 2000) that lack redundancy. But we live in a noisy universe and all natural languages have high redundancy (up to 50%) to ensure that at least part of the message gets through the noise.

For example, in English the expression of number is redundant. In "three dogs," the noun "dog" is marked as plural even though that is already clear from the "three." But in Hungarian, the plural suffix isn't used with nouns modified by a number greater than one (lány "girl," lányok "girls," két lány "two girls"). In English, the phrase "the dog eats" is marked as singular twice; by the *absence* of *-s* in the noun and the *presence* of *-s* in the verb.

Redundancy is now generally called enhancement in the phonetic literature. For an example of phonetic redundancy in English, say the words "see" and "she" while looking in a mirror. You will see your lips purse slightly for "she" but not for "see." This lip rounding isn't a necessary design feature of *sh*. Some languages have *sh*-sounds with spread lips. But it alters the sound slightly (as you will perceive if you try making a spread-lip *sh*) and helps English speakers to distinguish the two sounds.

Nor should we ignore the importance of the visual clue here. When watching a silent film you've probably noticed that you can often lip-read even without special training and visible speech gestures often supplement the auditory clues.

These three properties are fairly obvious. For the fourth and fifth properties, I can offer only indirect evidence. High modulation is a consequence of the fact that an unlimited amount of information (the open class of "meanings") is being encoded in a very small set of symbols (the closed class of "sounds," closed in the sense that new sounds can't be freely added to a language, although

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new meanings can be assigned to old words or newly invented words). The term "coding" is taken from the paper by Liberman *et al.* in the bibliography, where the authors argue that human sound systems are not ciphers like Morse code, but a more complex type of Gestalt encoding.

Although primate call systems are not languages in the human sense, it is suggestive and interesting that they seem to possess something like coding. That is, primates interpret their calls with the help of internal programming that is species-specific. This type of processing is not unique to language. For example, memories are not stored in one part of the brain, but scattered throughout in the manner of a hologram. It is also interesting that all early human writing systems used logograms[7], which have a unique representation for each syllable, and that the more abstract alphabet was apparently only invented once in human history.

Talking to the Stars

Much of the speculation on communication with aliens has seriously underestimated the difficulties. Programs like SETI search for radio signals as evidence of life. Based on an exchange of signals, we could begin with simple universal ideas and gradually learn to communicate complex concepts, or so it is said. Maybe so. Fred Hoyle's *The Black Cloud* assumes that a super-intelligent being could easily analyze our languages and learn to communicate with us. Again, maybe so. But the evidence we have doesn't bear this out.

Although apiculture has been practiced for thousands of years, it was only in this century that von Frisch realized that bee dances were a form of language. Primate call systems are larger and more complex than we used to think. Dolphins and whales exchange elaborate vocal signals, but no one is sure how much of this is communication or what it's about. In all these cases, we humans are studying species much less intelligent than ourselves. All attempts to understand animal communication systems have, in fact, been attended by great difficulty.

Am I saying that communication with aliens is impossible? By no means. Intelligence and technology will count for much. But I suspect we won't be able to sit down as we might with a human informant.

Like exobiology, extraterrestrial linguistics is a discipline without a subject and by necessity is 90% rank speculation. Let us try to temper the rankness as much as possible and very cautiously speculate about what we might actually encounter in a First Contact situation.

In this article, I am discussing only communication systems using sound as a channel, audible to human beings. Obviously, other channels are possible: witness gesture languages like ASL (American Sign Language). Possibilities that have been explored in science fiction include odors, radio waves, and electric signals. Even within the vocal channel, the ranges can be different. Cats and dogs can hear higher sounds than humans, and whales can perceive subsonic signals.

If the message is a modulated sound, it implies a signal and modulators, which in turn implies that the physical organs must include an acoustic generator, a resonant space, and some way of modifying the resulting sounds.

Human language is produced by organs which over thousands of millennia of evolution have been adapted from pre-existing structures. This implies two corollaries: that the association of human speech with the respiratory and alimentary systems is arbitrary, and secondly that these pre-existing structures provide certain fixed parameters that may shape the evolving system. Evolution by modification of what is already there is common enough. The lungs derive from a fish's swim bladder; some snakes have transmuted their saliva into

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poison; wings are modified arms or fingers.

This point becomes all the clearer when we consider the audio system of a radio or TV; without lungs, vocal cords, lips, tongue, or teeth, the vibrating diaphragm in a speaker can reproduce a wider range of sounds than the human vocal apparatus. In other words, the vocal apparatus of another intelligent species need not closely resemble that of human beings, need not possess close analogues of mouth, lips, teeth, tongue, need only have the basic components mentioned above: acoustic generator, one or more modulators, and perhaps a resonant space.

Whatever body parts make up the communication system of an intelligent animal, however, their physical structure will impose certain limitations, which in turn limit the type and range of sounds that can be produced. Take, for example, the human tongue. The tongue is a flexible muscle rooted to the floor of the mouth and back of the throat. The tongue functions as a sensory organ, as a food mixer, and as part of the speech mechanism. In the latter function, the tongue can be pushed forward or bunched up; these movements affect the quality of vowel sounds. The tongue can also be brought into contact with other parts of the mouth to produce various consonant sounds. The most common are *t*-like sounds made by touching the tip of the tongue to the teeth or roof of the mouth, and *k*-like sounds made by touching the back part of the tongue to the soft palate or even further back. It is easy enough to touch the lips with the tip of the tongue. Such linguo-labial sounds do not occur in European or Asian languages, but they are found in languages spoken in Vanuatu, such as Tangoa, where *mata*—"snake"—contrasts with *mnata*—"eye" (I'm using *mn-* to represent a single sound, an *m* formed with the tip of the tongue on the upper lip).

However, because the tongue is rooted, the tip of the tongue can only be moved back as far as the soft palate just behind the alveolar ridge[8]. So it would be impossible to make, say, a linguo-uvular sound by touching the tip of the tongue to the uvula.

In the same vein, we might note that trills can be produced by vibrating parts of the vocal apparatus, but only certain parts can be vibrated. The most common trills are like those of Spanish *r* and *rr*, with the tip of the tongue vibrating against the roof of the mouth. It is also possible to vibrate the back of the tongue against the uvula, as in Standard French and German uvular *r*, and a few languages have a bilabial trill produced by vibrating the lips together. But it is impossible (or at least very difficult) to vibrate just the side of the tongue to produce a trilled *l*. It is quite impossible to vibrate the nose. But a hominid species with a flexible nose might be able to produce a nasal trill.

Turning next to more abstract structures, the sound system as opposed to the vocal apparatus, we note that almost all human phonological systems show a marked degree of regularity and symmetry. There appear to be some universals. All human languages contain vowels (maximally open sounds) and consonants (sounds which have a narrower aperture, producing some interference with the airstream). In the word "Poe," *p-* is the consonant, produced by closing the lips and stopping the airstream, and *-oe* is the vowel. In all human languages, the flow of speech is divided into successive impulses called syllables (a concept not easy to precisely define). By far the most common type of syllable is CV (one consonant followed by one vowel). In some languages, this is the only permissible type of syllable.

Would such universals characterize alien languages also? I think most linguists would argue that all sound systems, not just human ones, would tend to be regular and symmetric. But the specific details would vary wildly. To see

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why, let us go back to our general model based on the human system.

The human vocal tract produces sounds by moving air through the throat and mouth. If the vocal cords are tightened, they vibrate as the air passes through them.

This air current can be modulated, but the range of possible modulations depends on the size and shape of that part of the vocal tract where the sounds are actually produced (from the vocal cords to the lips in humans), the physical properties of the modulating organs, and the availability of additional resonance chambers (in humans, the nasal passages). We have discussed a few of these possibilities above. Another significant example is the vowel triangle.

The low back vowel [a] in "father" is pronounced with the tongue in neutral position, neither advanced nor retracted; when pronouncing the high back vowel [u] in "rude," the tongue is bunched up toward the back of the throat; for the high front vowel [i] in "visa," the tip of the tongue is stretched forward. These three vowels define the shape of the vowel space in the form of an inverted triangle with the apex at the floor of the mouth and the other two points at the far front and far back. Since these vowels are the most acoustically stable of the range of vowels the human vocal apparatus can produce, they are found in almost all human languages and they provide a framework for the vowel system in the sense that other vowels are formed by moving to and from the basic vowels. We thus see a symmetry arising naturally out of the possibilities and limitations inherent in the vocal tract.

Non-human languages would probably have rhythmic units analogous to human syllables and such units would very likely contain resonant nuclei like human vowels. Aside from this, the possibilities are endless. For example, humans have only one set of vocal cords and can produce only one fundamental tone at a time. There is nothing in human language analogous to chords in music. But aliens who possessed two or more resonators could make use of this possibility and perhaps assign different functions to the two; for example, the basic vowel could carry semantic meaning while the chorded vowel could carry grammatical information.

Humans have only one resonance chamber, the nasal tract. Beings with more could produce a wider range of sounds. Symmetrical consonant systems in human languages are largely based on differences of timing (like the difference between *p* and *b* in English, which depends on when the vocal cords start to vibrate) or coarticulation (like the *-gb-* in the African language Igbo which combines the sounds *g* and *b* into one). But human languages don't make much use of differences in amplitude. A tongue-like organ that was more flexible than the human tongue might be double-bunched or curled into a tube giving a wider range of friction sounds or trills, or a forked tongue could produce unusual coarticulations (for example, *t*-like sounds with single or double contact).

Aliens might give misleading visual clues for familiar sounds. In human languages, a closed mouth produces lowered formants and less amplitude. But in aliens who spoke with neck gills, a closed mouth might be associated with louder sounds (example suggested by Bonny Sands).

Intelligent species that are aware of the importance of coding and have done their homework will devise ways of dealing with the problem. Most communication between rational species is likely to require a machine/sentient interface. Computers equipped with the necessary programs could act as translators.

Of course, intelligent computers might have their own agendas. As the Italian proverb puts it, translators are traitors. So if we wanted to have a more direct contact with the original lan-

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guage, we might use something like false color in astronomy, where arbitrary colors in the human visual range are assigned to ultraviolet or X-ray frequencies. In the same way, standard human sounds might be arbitrarily assigned to the alien sounds we can't process directly. Or it might be possible to install the programs directly in our own brains and nervous systems.

SF stories about alien contact tend to draw their metaphors from human history: Rome subjugates the Britons; medieval Europe learns Greek science from Islamic civilization. But surely biological metaphors would be more appropriate—symbiosis, parasitism, predator and prey, ecological balance. After all, we are talking of different species.

For example, the existence of skillful mimics like parrots and mynahs has interesting implications for science fiction. Fans will remember Dr. Ftaeml, the interpreter in Heinlein's "The Star Beast," who boasts that he can swear in a thousand languages. Could such a species—natural interpreters—evolve? In a galactic cultural network that lasted for a million years or more, species would be affected by evolutionary pressures. A species with a vocal tract and internal programming flexible enough to deal with the speech of other species might evolve, or be deliberately bred.

It is also possible that a species might develop a more efficient coding. Arthur C. Clarke's Overlords speak in "rapid bursts of highly modulated sound." Actually, this is a pretty good description of human speech, but what Clarke presumably means is that the Overlords' language is better designed for its purpose. We humans can communicate at speed because we compress sequences of meaningful units into a single gestalt. More efficient coding might result in faster transmission and processing of speech with a concomitant evolutionary advantage.

Finally, alien vocalizations might be interesting to us for reasons other than communication. Birds signal to each other to mark territory, to attract mates, or warn of danger, but to humans, the value of bird songs is that they are beautiful. The vocalizations of some aliens might be valuable for their beauty and strangeness, like whale songs.

Alien languages will be of enormous value to linguists. It is difficult to base a universal theory of language on our one example (particularly since some linguists believe all human languages may have a single origin). But their value will reach beyond the purely technical. In each human language, the flavor of thought is different. The value of a nonhuman language will lie in the perspective it gives, the light it sheds, on our humanity. We modern humans are losing our resources and the diversity of our environment at a furious rate. By the end of the next century, at least half (some say more) of the 5,000-6,000 languages now spoken will be dead. With each language that dies, we lose a unique way of thought, a unique way of looking at the world, as well as a unique marriage of sound and thought, a music to be found in no other tongue.

We don't know if they're out there. We've seen no traces of them. We have no clues. We don't know if they'll be our brothers or our enemies or our teachers. But it is pleasant to think that along with the physical wealth, the metals and minerals and bits of data, there may be riches also of the voice and mind and soul. ■

Endnotes:

Note 1. Hua is spoken in Papua, New Guinea; Tsez in the Caucasus. Salish is an American Indian language of the Pacific Northwest, while Dyirbal is spoken in Australia.

Note 2. For example, parrots and mynah birds. This is the traditional belief but current research by Dr. Irene Pepperberg is challenging this view. For a review of her work, see http://www.indiana.edu/~bs/Timberlake-rev-Pepperberg.htm

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Note 3. A token is one physical example of the linguistic entity under investigation; for example, the words displayed in the acoustic spectrogram in Figure 3 are tokens of the words "bab" and "gag" produced by a single speaker (Dr. Miller-Ockhuizen) on a single occasion.

Note 4. The primary speech centers, on the left side of the brain in humans, are cross-connected with the right eye, ear, and hand, so that in processing language tasks, humans show a right ear advantage not found in other kinds of tasks.

Note 5. Abercrombie (1967) quoted in Catford (1988: preface) calls speech "audible gesture."

Note 6. Charles Hockett, American linguist known for his *Manual of Phonology* and his work on Algonquian languages. In later life, he became a composer. He contributed an article to *Analog* back when it was *Astounding Science Fiction*, "How to Learn Martian," *ASF*, May 1955.

Note 7. All of the earliest true writing systems—Sumerian, Akkadian, Egyptian, Hittite, Chinese—used characters that stood for entire syllables, along with logograms that represent whole words or roots of words. Even the Cherokee writing system devised by Sequoyah under the stimulus of European writing was a syllabary rather than an alphabet, suggesting it is more natural for humans to perceive words as successions of syllables than to analyze the syllables into sounds.

Note 8. The alveolar ridge is the hard part of the palate directly behind the teeth.

References:

Catford, J. C. (1988) *A Practical Introduction to Phonetics*. Oxford University Press.

Cheney, Dorothy L. and Seyfarth, Robert M. (1990) *How Monkeys See the World*. Chicago: The University of Chicago Press.

Hockett, Charles F. (1955) *A Manual of Phonology*. *International Journal of American Linguistics*, Memoir 11, Vol. 21, No. 4, Prt. 1.

Ladefoged, Peter (1975) *A Course in Phonetics*. Harcourt Brace Jovanovich.

Ladefoged, Peter (2003) *Phonetic Data Analysis*. Blackwell Publishing.

Liberman, Alvin M. et al. (1967) "Perception of the Speech Code," *Psychological Review*, Vol. 74, No. 6, pp 431—460.

For more information:

See especially Peter Ladefoged, *A Course in Phonetics*, 1975, Harcourt Brace Jovanovich, ISBN 0-15-515180-0, J. C. Catford, *A Practical Introduction to Phonetics*, 1988, Oxford University Press, ISBN 0-19-824217-4, and Peter Ladefoged, *Phonetic Data Analysis*, 2003, Blackwell Publishing, ISBN 0-631-23270-2.

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After over twenty year's residence on the West Coast, Henry Honken last year moved back to the Midwest, where he spends his time in writing and language research. Honken graduated from the University of Minnesota with a BA in anthropology and spent three years in Japan teaching English in a juku. He worked for many years as sales coordinator for Yasutomo and Company, an import-export company based in San Francisco.

Honken has had half a dozen papers published in Khoesan linguistics and recently presented a paper on the history of the tonal system in Central Khoesan at the January 2006 Khoisan Symposium in Riezlern. He has had one story published in *Lynx Eye* and an article in the *Burroughs Bulletin* on Burroughs' use of language under the pen name Sam Cash.

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The Astronaut

Brian Plante

Inspiration doesn't always take the form you might expect . . . .

In May of 2030, right after school let out for the year, my family moved from New Jersey to Seguin, Texas, home of the world's largest pecan, relocating us to follow the company they both worked for. By June, I was bored to death. My friends (all two of them) were back in New Jersey and I didn't know anybody in the new place yet, and wouldn't until school started up in a couple of months. Each morning, my folks would commute to their jobs in San Antonio, an hour's drive to the west on Route 10, so I was alone most of the day, spending my time just staring at the ceiling of my bedroom or watching the Mars Channel on the holovision. The *Romulus* had been underway for three months, with another three to go before it made its way to the red planet, and even that was starting to get a little boring.

Among the few chores my parents gave me to justify my miserable existence during those long summer months was to keep the lawn mowed. That wasn't such a big deal in New Jersey, where the grass only grew half the year, and the summers were semi-bearable, but in Texas the heat was intense. It wouldn't have been so bad if the house hadn't come with an underground irrigation system, since the grass would have withered and blown away as the land turned back to the desert it naturally should have been, but unfortunately for me this grass was lush and green and it was my job to keep it that way. This was no small task in that scorching heat.

I had the lawn maintenance down to a weekly schedule, and one blistering day late in June it was time to mow again. I was fifteen years old, and like a lot of boys that age, I wasn't particularly industrious when it came to performing slave labor. Instead of mowing the lawn in the cool of the early morning, like any sensible person would have done, I went back to bed after my parents had

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gone to work. I slept a little more, stared at the ceiling for a while, and watched the transmission from the *Romulus* for a couple of hours. By 11:00, the sun was high and the heat was building outside, and *then* I had the mowing to do. What a jerk I was, huh?

So there I was in the noonday sun, sweating bullets as I finished up the lawn, pushing the loud, stinky mower back into the garage, when I first caught a glimpse of *her*. It was my next-door neighbor, and she was a major distraction. She was probably twice my age, but a real beauty, with a pretty face, strawberry blonde hair and a body to die for, dressed in khaki shorts and a Vikings football jersey. A boy my age with serious hormone problems couldn't have hoped for a nicer neighbor, and I had struck gold.

She was sitting on a fancy riding mower, trying in vain to get the thing started. A damsel in distress. I put away our mower and walked over to introduce myself.

"Hi, I'm Davy Carson, your next-door neighbor," I said. "Got problems with your mower?"

She looked flustered and startled when I spoke, then looked me over and apparently judged me harmless. "Hello, Davy Carson. Pleased to meet you. I'm Rosemary Horton." Even though she looked like your typical Texas beauty pageant queen, her voice had a flat Midwestern accent, not the local drawl. It was a wonderful, pleasant voice. "You folks just moved in a few weeks ago, didn't you?"

"Six weeks already," I said.

"Oh, that long? I really should have come over sooner and said hello. I mean, we're neighbors and all. Is your mom at home?"

"No," I said. "Both my parents are at work. I, um, take care of the house during the daytime. Hey, would you like me to look at your mower? I'm pretty good with my hands."

"Could you? I mean, if it's nothing too serious. My husband Richard bought me this stupid thing so I can do the lawn myself, but I don't know anything about engines."

Her husband. She was married. I looked at her left hand and there was the ring. I was briefly disappointed—as if I'd really ever have had a chance with an older woman like that! What a jerk I was.

"Let me see what I can do," I said anyway.

I popped the hood and found the problem almost immediately. It was something simple: a sparkplug wire had come loose and I snapped it back on the plug.

"Try it now," I said.

Mrs. Horton turned the key and the engine roared to life. She gave it some gas and the mower jerked in reverse, back into the garage, before she slammed on the brakes and stalled it.

"Shoot," she said. "Say, Davy Carson, you wouldn't like to make some money mowing my lawn, would you?"

Well, there I was, this horny, pimply teenager with nothing but spare time on my hands, and the gorgeous next-door neighbor was offering me money to work for her. Was I gonna say no?

"I have to call my dad and ask if it's all right to use our mower on someone else's yard. He's a bit picky about his tools."

"No, that's okay," she said. "I meant for you to use my mower. You can drive one of these things, can't you?"

I hadn't driven a riding mower before, but I wasn't going to tell her that. I said yes, and figured out how to run the thing real quick. I was always good with machines, so it was pretty simple.

While I mowed her lawn, she went back into the house, and I couldn't blame her. It was hot enough just standing around watching, but Mrs. Horton's lawn wasn't that large and the riding mower made quick work of it. I was putting the mower back into her garage when she came out with a pitcher and a

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couple of tall glasses.

"You look pretty sweaty," she said. "Would you care for some iced tea?"

She looked so pretty. Was I gonna say no? We both had a glass, and drank it there in the garage, using the hood of the mower as our table. It was probably the best iced tea I ever had.

"So what do your folks do for a living?" she asked between sips.

"They both work for an electronics company in San Antonio," I answered. I almost asked her what she did for a living, but stopped myself. Women that beautiful probably didn't have to work for a living, and here she was, home in the middle of the day. "What does your husband do?" I asked.

"He's an engineer. He's away on a long-term project right now, though."

"Hey, my dad's an electrical engineer," I said. "What kind of project is your husband working on?"

Mrs. Horton's mouth opened to speak, but then she caught herself. After a pause, she said, "I'd rather not say. It's sort of a secret."

I thought for a second about what kind of engineering projects were secret. It could be government work, some sort of espionage or weapons program, or it might be some overseas thing. Maybe something in the Middle East or an offshore rig. Whatever it was, if she wanted to keep it secret, that was all right by me. It wasn't her husband I cared about.

"I understand," I said, nodding my head like I knew something.

"And what do you want to be when you grow up?" she asked.

Ooh, that hurt. *When you grow up.* To her I was only a kid. I *was* a kid, but back then, fifteen felt pretty grown up to me. I'm sure I blushed, because she looked a bit startled, probably realizing she had hurt my feelings. "I'm sorry," she said. "I meant when you get out of school."

"Well," I said, "I think I want to be a pilot, and fly a spaceship, like the *Romulus*, only we'll probably be going to Europa or Ganymede instead of Mars by then."

Mrs. Horton looked surprised. "Are you following the Mars mission? I didn't think too many people were interested in the space program these days, since the first couple of landings."

"Are you kidding?" I said. "Being an astronaut has gotta be the best job in the whole world."

"Well, maybe not everyone thinks so," she said. "Besides, the spaceships are all automated these days. They don't really have pilots anymore."

She probably thought I was just some starry-eyed dreamer, but I was serious. "Well, pilot or not, any kind of astronaut job would be just great for me," I said. "I think they're heroes."

Mrs. Horton looked like she wanted to say something, but she just dazzled me with her sweet smile and poured me some more tea.

"Davy, would you like to mow the lawn for me every week, as a regular job? My husband won't be back from his assignment for a while, and I just can't handle this mower by myself. You seem to know what you're doing and I'd rather have a friend do the job than hire some stranger."

She called me a friend. That beautiful woman called me a friend, the first one I had made in Seguin. Was I gonna say no?

She paid me ten dollars for mowing her lawn that day. It was a bit low for a job like that, especially in that heat, but I didn't say anything. After all, the riding mower practically did all the work, and it was kind of fun riding it. And her iced tea really was the best. And then there was her.

I would have done the job for free.

A couple of months went by, and I learned that the heat in Texas in June barely hinted at how hot it would get by August. I mowed both our lawn and Mrs. Horton's all summer long, and drank a lot of iced tea in her garage. We

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chatted about the weather, the neighborhood, and Texas. She was originally from Minneapolis, and missed having a real winter. I hadn't been in Seguin long enough to see what a Texas winter was like yet, but we both shared our mutual homesickness.

I also spent some time painting the ceiling of my bedroom. It took some arguing, but my parents relented and agreed to let me paint it flat black, and then decorate it with glow-in-the-dark stars. I even painted in a faint Milky Way diagonally across the room. The overhead lighting fixture in the center of the ceiling became the Sun, and I painted the planets in their proper orbits around it. Halfway between the Earth and Mars I taped a small picture of the *Romulus* that I had printed from my computer, and repositioned it each week to show it approaching the planet. Yeah, it was a geeky thing to do, but it kept me busy.

Mrs. Horton was right about spaceships not needing pilots, and when I investigated the Space Agency's public information database, I learned that the crew of the *Romulus*, typical of the previous two Mars missions, included one geologist, one biochemist, and two flight engineers. The engineers were basically mechanics, to insure that the equipment worked for the duration of the two-year mission.

I wasn't particularly good at biology or interested in rocks, so if I was going to become an astronaut, it would probably have to be as a flight engineer. It didn't sound nearly as exciting as "pilot," but I was good with my hands, so it looked like I was going to be studying engineering, like my dad. And apparently, like my next-door neighbor.

Since school hadn't started, I still hadn't made any friends in the neighborhood yet. Hardly anybody went outdoors in the summer heat, so I just didn't have any opportunity to meet anyone. As a result, Mrs. Horton became the sole relief from my monotonous life. I started mowing more often than once a week, and doing maintenance on her mower—cleaning it, sharpening the blades, changing the oil, plugs, and filters—just so I could see her again and share an iced tea more often. I was smitten with her.

The rest of the week, when I wasn't watching the Mars Channel, I spent a lot of time peeking out of my window, hoping to catch a glimpse of her coming and going. I rarely saw her outside the house except for mowing days, and I never saw any visitors show up at her doorstep, so maybe she was lonely, too, what with her husband away so long.

One morning, while I was sleeping in, I was awakened by a phone call from Mrs. Horton.

"Davy, I need you to do a big favor for me," she said. Her voice sounded a bit shaky on the other end of the phone. "I got called away unexpectedly, and I need someone to look after the house for a few days."

"Sure, Mrs. Horton, anything you want."

I would have painted the house if she'd asked me.

"I have a house key hidden on the patio in back," she said. "There's a big geranium pot on the far end, and the key is underneath it."

She was trusting me a lot. I felt proud of that. "What do you want me to do?" I asked.

"Could you please take in the mail and make sure the water's not running? Maybe turn the air conditioning down a little—the thermostat is on the wall between the kitchen and the stairs. Oh, and water the houseplants in the breakfast nook and the foyer."

"Okay," I said. "Is there anything more I can do? Is everything all right?"

"There's been a little problem," she said. "But I don't think it's too serious, now. I should be back in a few days. I'm sorry to hit you with this at the last minute, but I know I can count on you."

That made me feel proud. She was thinking of me as a friend, not just the

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kid next door. I wondered what sort of situation could have called her away. A medical emergency? A death in the family? But I didn't want to pry.

"Thanks, Mrs. Horton," I said. "I'm glad you're my friend."

"You're a good boy, Davy," she said, and hung up the phone.

Ouch, she still thought of me as a boy. But I still loved her. I would always love her.

The key was right where she said it was, under the geranium pot. I took the mail out of the box and I let myself into the house through the back door, into the kitchen. The whole two months I was mowing her lawn, I had never been inside the house before.

I glanced at the mail before leaving it on the island in the middle of the kitchen. There was a bill from the electric company, addressed to one Mr. Richard Keyes. Who was Richard Keyes? The name sounded familiar. There were a couple of pieces of junk mail made out to Rosemary Horton. Finally, there was a letter from Randolph AFB in San Antonio for one Col. Richard Keyes.

Okay, Richard Keyes was her man, all right, but were they really married? She wore a wedding ring, but she didn't have the same last name. Perhaps there was still hope for me yet! Maybe she was just living with the guy—if he ever showed up, that was.

And he was a colonel, presumably in the Air Force. That made some sense, since it might explain the secrecy. He was probably on some sort of military mission, and Mrs. Horton's saying he was an engineer was probably just a cover story. Maybe he was a spy.

Mrs. Horton's house was mostly like my own, only a bit nicer and slightly larger. I turned the air conditioning down a bit, made sure the sinks and toilets weren't running, and watered the houseplants. I was so curious about Mrs. Horton that I just *had* to look around a bit.

In the refrigerator was a pitcher of iced tea, ready to go. I almost took a glass, but thought better of it. She had trusted me with the key to her house. Was I breaking that trust by snooping? I decided to keep everything exactly as it was. But I couldn't help myself—I still looked.

The kitchen seemed too orderly. The floor was spotless and the countertops neat and tidy. Only a single coffee cup in the sink gave any indication that someone lived there. The dining room looked like it had never been used—the dark cherry wood table shined as if it had been polished every day, and the six upholstered chairs looked as if they had never been sat in. Fancy museum-piece china filled a glass cabinet.

The breakfast nook looked nearly as untouched, except for one of the chairs. The chair was pulled away slightly from the knotty pine table. Looking closer, I noticed that the varnish at the end of one of the armrests was marred—chipped away in hundreds of tiny ruts, perhaps by the repeated drumming of fingernails.

In the family room, the Hortons had one of the biggest holovision sets I'd ever seen. I found the remote and turned it on. It was tuned to the Mars Channel. So Mrs. Horton watched that, too. But instead of the usual live transmission from the *Romulus*, a studio anchor at Mission Control was reading some news copy. Apparently, while I was sleeping late, there had been an important story.

During the night, a fire had broken out aboard the *Romulus*. The crew had to don their pressure suits and evacuate the air from the cabin to put the blaze out. It was dicey for a while, but everyone was okay and the mission was continuing. They were still one month away from Mars.

I turned off the set and put the remote back where I found it. I should have left the house then, but I wanted to look upstairs. I wanted to see *her* bedroom. I was a horny teenager and she

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was the most beautiful woman I knew, so I wanted to see where she slept. It was a betrayal of trust, but I *had* to see.

Upstairs there were three bedrooms, just like at my house. The one that was like my bedroom was being used for storage, with cardboard moving boxes stacked four high. Another bedroom had an ironing board, a sewing cabinet and a dress form. Mrs. Horton sewed. I didn't know that about her before.

The last bedroom was the master suite. A simple oak bedroom set, with the standard furniture and room setup: a queen-sized bed, a couple of night tables, a dresser, and an armoire. Nothing too fancy. The bed was made up with a plain blue bedspread and four pillows. I don't know what I was expecting, some sort of pleasure den or something. This looked more like a hotel room. I couldn't even tell what side of the bed she slept on.

Off to one side of the bedroom was the door to a bathroom. On the sink were two toothbrushes—the pink one used, the green one brand new. I'm ashamed to say, I opened the medicine cabinet and looked in there, too. I wasn't going to steal anything, but I was just curious and wanted to know everything about her. There was the usual assortment of analgesics, antihistamines and cold remedies. A digital fever thermometer. Bandages. Also one pregnancy test, unopened.

I left the bathroom and went back out into the bedroom. On the dresser was a studio portrait, a wedding picture. There was Mrs. Horton, radiant in her white dress, hugging the tuxedoed Mr. Horton. Or Colonel Richard Keyes. They really *were* married, the lucky bastard. In the photo, he looked thirtyish, handsome, and in pretty good shape—exactly the kind of guy a lady like Mrs. Horton deserved. He was everything I was not.

I started to leave the bedroom, but was stopped short by the sight of another framed photograph on the wall by the door. It was a picture of him, Colonel Richard Keyes, in uniform. It was an astronaut's pressure suit.

He was *that* Richard Keyes, the one on the *Romulus*. An engineer. A *flight* engineer. He was Mrs. Horton's husband and my next-door neighbor, a real astronaut.

But why would she keep it a secret, especially knowing I wanted to be an astronaut, too? Why didn't she take his name? Why did they live out here in the boonies of Seguin instead of Houston, where the Space Center was?

I recalled the first time we met I told her that an astronaut had the best job in the world and she said not everyone thinks so. Maybe she didn't like being an astronaut's wife. Perhaps she didn't want the publicity.

I really felt guilty then. Here I was, some geeky, horny teenager snooping through their house. And how I went on and on to her about becoming an astronaut, while all the time her husband was a real hero on his way to Mars. I was even starting to delude myself that I might ever have a chance with a woman like that. God, how pitiful I must have seemed to her.

Mrs. Horton had her secrets, and now, so did I. It was only because of my snooping that I knew her husband was aboard the *Romulus*. If she didn't want to tell me that, then I wasn't supposed to know.

I locked up the house and put the key back under the geranium pot.

A month later, the *Romulus* finally landed on Mars after its voyage of six months. It was a huge story for me, although most of the world greeted the news with a sigh. The crew would be on the planet for a little under a year, and the media just couldn't keep people excited about anything for that long. This was the third manned landing on the red planet. It had already been done.

I started school as a sophomore at Seguin High that month. Making friends was pretty tough, as most of the cliques

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had already been formed in freshman year and I was the new kid. I buckled down and worked hard on my math, entering the honors program. Engineers needed math.

I continued mowing the lawn for Mrs. Horton after school and on weekends. She also gave me odd jobs to do around the house, like painting the garage and cleaning the gutters. I would have done anything for her.

Over iced tea, I'd occasionally bring up the notion that I still wanted to be an astronaut and was preparing for a degree in engineering.

Mrs. Horton would always smile and say, "That's nice," but I often wondered if she really meant it. After all, her husband was an astronaut, and she didn't seem too eager to let anybody know about it.

When the *Romulus* landed, she was away for three days, presumably in Houston at the Space Center. I didn't ask. I just took in the mail and watered the plants.

At home I watched the four men on the Martian surface. While everyone else may have lost interest after a few days, it was still the only thing worthwhile on holovision for me. How jaded could people have become to lose interest in something as astounding as men walking on Mars?

Fourteen months went by. It was November and I was a junior at Seguin High, and I watched the Mars Channel every day. The crew of the *Romulus* had finished their work on the planet and were halfway home. In another three months, Colonel Richard Keyes would finally return and I'd lose my job mowing Mrs. Horton's lawn, but I'd get to meet a real astronaut!

Mrs. Horton switched from iced tea to lemonade for some reason that autumn. It was good lemonade, but I missed her tea. She still never let on that her husband was an astronaut, and I played along with not knowing. Eventually, I'd get to meet him, and then I'd say in surprise, "Hey, you're that astronaut guy from Mars!" and the jig would be up. But for now, it was still a big secret.

Once, when I was mowing her lawn, some astronaut groupie pulled up to the curb in his car and started snapping photos of the house. I stopped the mower and asked him what he was doing.

"This is the home of Colonel Keyes, isn't it?" he asked.

"Keyes?" I said in mock consternation. "No, this is the Horton residence. Can I help you?"

He took a few more photos and drove away.

A couple of weeks later, over lemonade, I was joking around that Mrs. Horton looked like she was putting on a little weight. What was I thinking? You *never* tell a woman that you notice something like that. I was getting older, but I wasn't getting any smarter.

"Well, Davy, that's because I'm pregnant," she said.

I nearly choked on the lemonade, and Mrs. Horton thumped me on the back a few times until my coughing subsided.

What I should have said was, "So that's why you stopped making the iced tea—cutting back on the caffeine for the baby!" But what I really said was, "But how is that possible? Your husband hasn't been around for—"

I cut myself off. What a jerk, what an absolute jerk I was. If her husband had been gone for two years and now she was pregnant, then that meant that Mrs. Horton . . . no, it *couldn't* be. Could it?

"No, it's not what you're thinking," she said. "Richard is coming home soon. Before he left, we decided to start a family when he returned. There was the possibility of some exposure to dangerous radiation on this assignment, so we took a sperm sample before he left. Now that the dangerous part of his project is over and he's coming home, I decided to go ahead so the baby would be here when he returns. It's sort of a wel-

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coming-home present."

I gulped the rest of my lemonade. Perhaps I was relieved that she wasn't cheating on her husband, but I was a bit jealous. Even from millions of miles away, the famous Colonel Richard Keyes, the great hero, knocked her up. And I was just the lawn boy. It was stupid. I was stupid.

"Um, do you, like, need a Lamaze partner or something?" I asked.

Mrs. Horton laughed, that pretty, musical laugh. "Oh, no, Davy. Richard will be back in time for the birth. I wouldn't have him miss that."

Then I really felt foolish. Imagine, thinking that she would have me, the lawn boy, in the delivery room while she gave birth. I could feel my cheeks flush with embarrassment.

Mrs. Horton noticed I was blushing and smiled. I looked away, and she put her arm around me and pulled me close in a hug. I could feel the swell of her breasts against my neck, and smell her faint perfume up close.

"That is so sweet that you'd offer to do that," she said. "You really are a true friend, Davy."

And then she kissed me. A friendly buss on my cheek, but a kiss nonetheless. It only lasted seconds, but it was the first time I'd ever been kissed by someone who wasn't a relative. My first kiss from an astronaut's wife.

Later that night, I started looking at MIT's course catalog.

Three months later, the *Romulus* had made its way back and taken up orbit around Earth. The crew was transferred to an orbital ferry for the final short leg home. Mrs. Horton asked me to keep an eye on the house for a few days, saying she had some business to attend to, still keeping her secret until the last possible moment. I knew she was really going to the cape to welcome her husband home on landing.

The reentry was late on an afternoon in May, and I decided to watch it on Mrs. Horton's big holovision set. I let myself in, after school, and sat in her family room in front of the huge screen.

You couldn't see the hunk of space debris on the live feed from the orbital ferry. One minute everything was fine, and the craft was starting the burn that would bring it down, then the next moment there was an explosion and the whole ship seemed ablaze, with sirens going off and lights flashing. The picture broke up a few seconds later.

The news anchor who took over seemed not to know anything more than what everyone had just seen on the live shipboard camera: something had gone terribly wrong. It was several minutes before they would confirm that the ferry had broken up and all of the crewmembers had perished in the accident.

I turned the holovision off, locked up the house, and trudged home. I didn't cry until I got back to my bedroom and shut the door.

Do astronauts ever cry? What difference did it make if astronauts cried or not? I cried, but I was just a stupid kid.

Over the next few weeks, the whole world went into mourning. It took the death of those four astronauts to make the space program big news again. The mission was, overall, a success. The *Romulus* and all its samples were still in orbit. All the data collected was safely stored in computers on the ground. Only the crew didn't make it home.

I watched the memorial service on holovision. Mrs. Horton was easy to spot—her strawberry blonde hair and pregnant figure easily recognizable in the crowd. The press briefly picked up on the story that one of the astronaut's wives was eight months pregnant, but she refused all interviews. The press identified her as Rosemary Horton Keyes.

I never saw her again.

A few weeks later, an army of house movers came and packed everything up,

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and then a huge van took it all away. A "For Sale" sign went up in front of the house the next day.

A professional lawn care company took over, mowing the lawn once a week, regular as clockwork. I checked the mailbox, but the mail was already being forwarded somewhere else. I let myself into the house one last time with the key. The movers had done a thorough job. There was nothing left—no sign that anyone had ever lived there. In the bedroom, only a few dim marks in the freshly vacuumed carpet showed where the furniture had been. There was nothing I could take, no memento, no souvenir of my friendship with the astronaut's wife.

I left the key in a kitchen drawer and pulled the back door locked behind me on the way out.

Much to my parents' relief, I asked if I could repaint the ceiling in my bedroom white again. It took me four coats to cover the black background. I didn't care much about planets and stars anymore.

Three more months went by, my most boring summer ever. Instead of the Mars Channel, I had started watching baseball. I hate baseball. Some days I didn't get out of bed until noon. I was seventeen, and about to start senior year at Seguin High, although I had no idea what I wanted to be when I grew up.

And then I received her letter. It was postmarked from Minneapolis.

DEAR DAVY,
I'M BACK IN MINNESOTA WITH FAMILY NOW, AND LOOKING FORWARD TO A REAL WINTER AGAIN. SORRY I DIDN'T GET A CHANCE TO SAY GOODBYE, BUT I GUESS YOU KNOW WHY. WHEN DID YOU FIRST KNOW MY RICHARD WAS ON THE *ROMULUS*? YOU'RE SUCH A SMART BOY, I'M SURE YOU FIGURED IT OUT LONG AGO. AFTER THE ACCIDENT, I JUST COULDN'T GO BACK TO THAT HOUSE. THAT WAS OUR HOUSE, AND BESIDES, I ALWAYS HATED TEXAS.

HERE'S A CHECK FOR THOSE LAST FEW WEEKS YOU WERE TAKING CARE OF THE HOUSE. I DIDN'T MEAN TO RUN OFF OWING YOU MONEY. I'VE ALSO ENCLOSED A LITTLE SOMETHING FROM RICHARD'S THINGS I THOUGHT YOU MIGHT LIKE TO HAVE. AND A PICTURE OF THE BABY. THE BABY IS BEAUTIFUL, AND HEALTHY. HIS NAME IS RICHARD DAVID KEYES.

LOVE,
ROSEMARY

I never cashed that check. It wasn't for a very large amount, but I figured Mrs. Horton needed the money more than I did, what with little Richard David to support. It would feel like taking advantage if I cashed it.

The photograph showed mother and baby. The baby was small and pink, but perfect. Mrs. Horton smiled, but sadness spoke through her eyes.

The final item in the envelope was a round embroidered mission patch from the *Romulus*. It showed the ship in silhouette against the red Martian globe.

I looked in the mirror, and held the patch up to my shoulder. It looked *right*. A week later, I received my letter of acceptance from MIT. It would be another ten years before I would again be kissed by an astronaut's wife. ■

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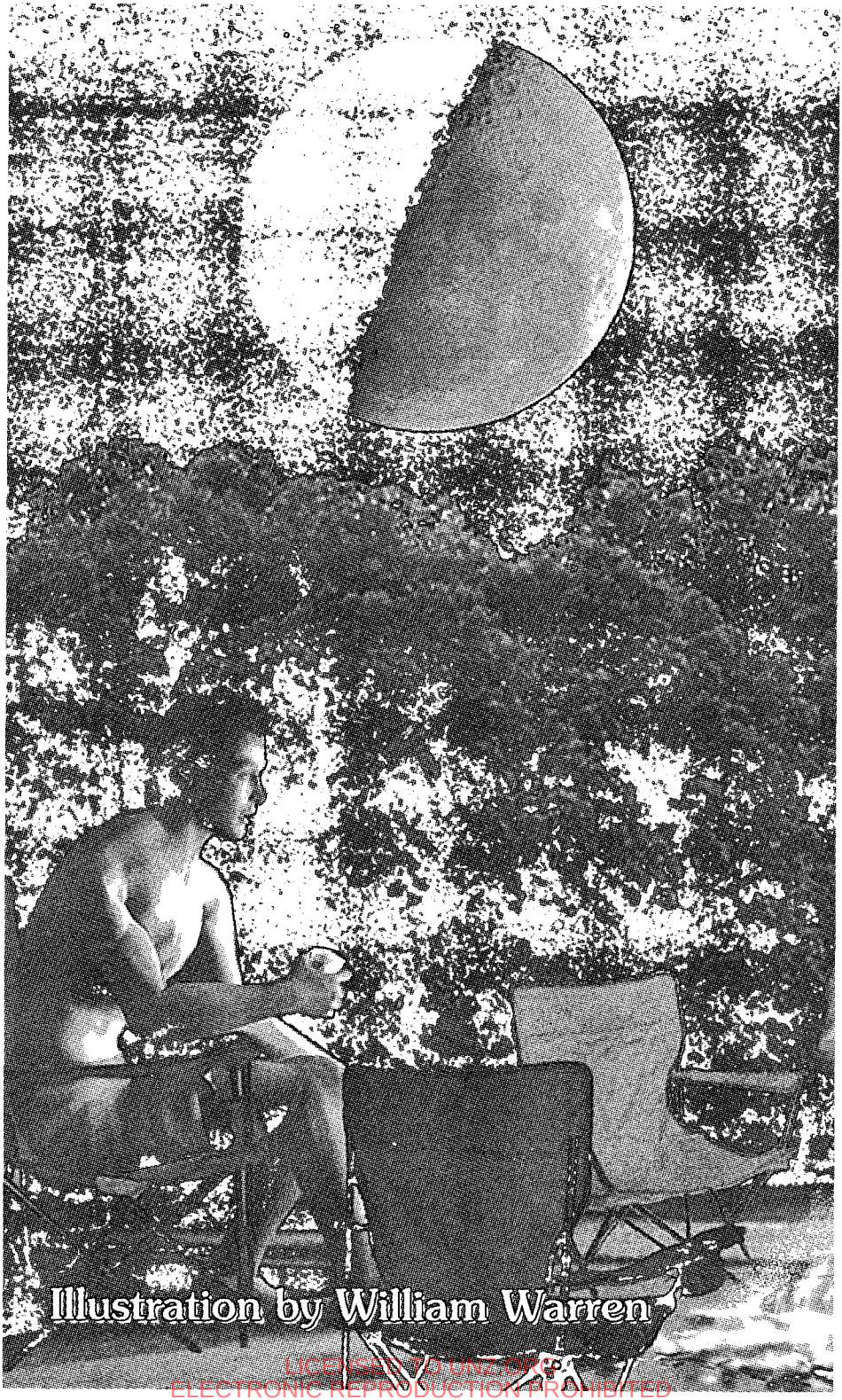

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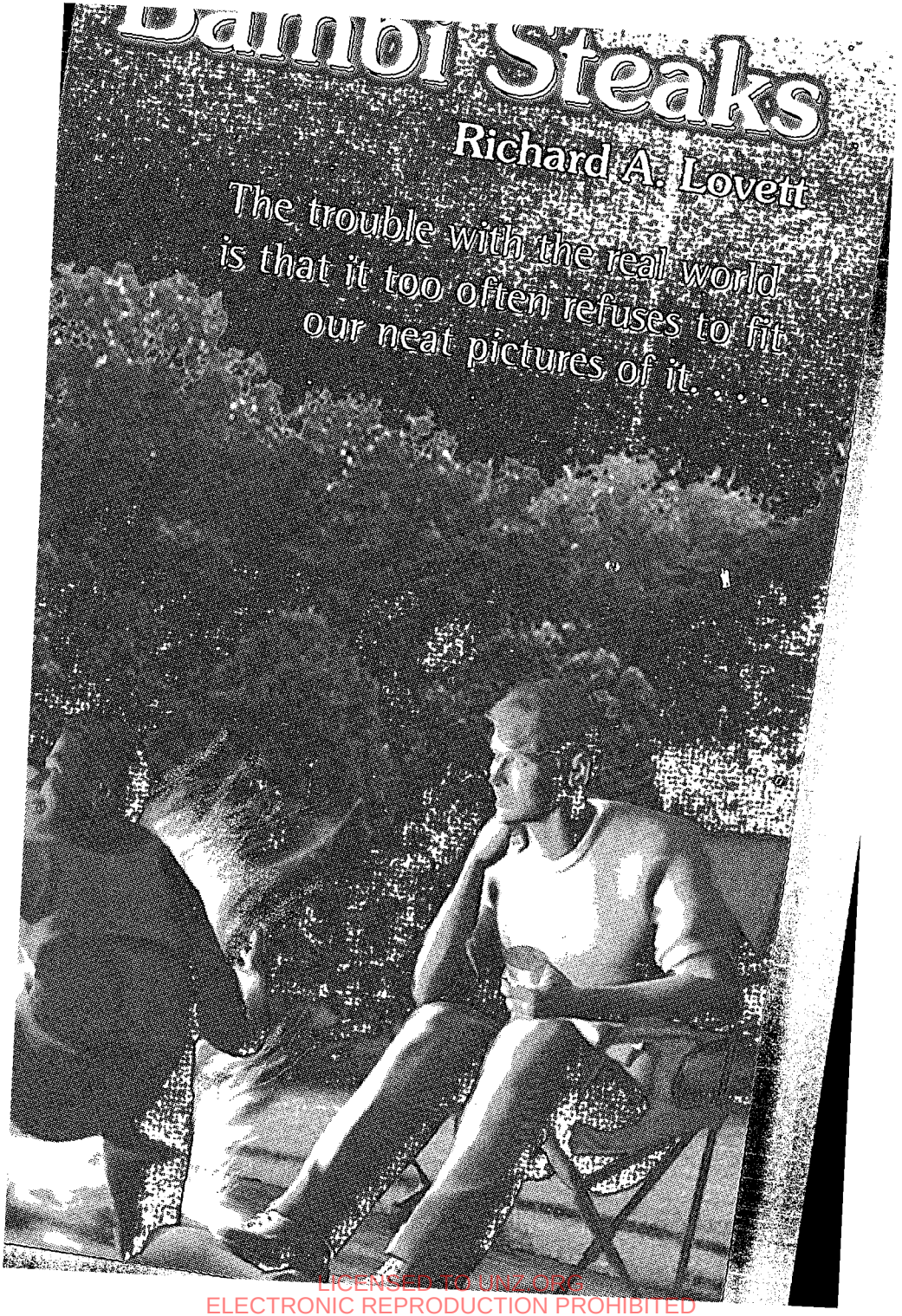
Barrel Steaks

Richard A. Lovett

The trouble with the real world is that it too often refuses to fit our neat pictures of it. . . .



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I hate Mondays. But this one wasn't too bad until I got the interrupt-mail telling me it was my turn to be Red. Not just for a week, like my cousin James, but for the whole friggin' month. How unlucky can you get? I mean, that might not be much of a hardship for some people, but I'm about as Blue as they come. Born and bred on the Upper Left Coast, except for a stint at Redwood Coast University, which, if anything, is Bluer yet. When I was there, I majored in English lit and got Cs for a couple of years before dropping out, which pretty well prepped me for my present career, pouring lattes at minimum wage. Plus, of course, the great benefits you get in Blue states. Gramps says my true major was "campusology"—his term for sandwiching "useless" courses between all-night bull sessions on how-we'd-fix-the-world-if-only-someone-would-listen. But Gramps is a Red and lives in Texas, so of course he wouldn't understand anything that doesn't go "moo."

Dad claims Gramps and I aren't as different as we think. But that's just wishful thinking. Or maybe an existential leap. See, some of that lit stuff stuck. An existential leap is making your own meaning out of something that's inherently meaningless, so you can pretend it isn't. My last semester, I did a paper on Hemingway, and he did a lot of that. Or I thought he did. The prof said I'd oversimplified and gave me a C minus, but he was awfully wishy-washy for a Blue. Gramps says all Blues are wishy-washy—though he usually adds a couple of politically in-C epithets to underscore his point. Hemingway did that, too, but at least he lived back when nobody knew better.

It must have been wishy-washy folks like Dad and my lit prof who glommed onto the Exchange when some genius came up with it. Stupid idea, if you ask me, but I was too young to vote, so nobody did. I mean, if you mix Red and Blue rather than letting them segregate like they want to, what do you get? Purple, that's [illegible] ing the Union with purple? What differ- ence does it make if half the states between California and Connecticut secede? That's why God invented airplanes, so you can get to the East Coast by flying over the top of them. Sorry, but when you mix Red and Blue you don't get the color of kings and compromise. All you get is sludge.

That's what I'd have said, but nobody asked because I was about thirteen at the time. Which was unfair because by the time they finally got the bugs out of the technology, my generation *was* old enough, so they should have waited. Though of course we'd have said "no way," and then what would have been the use of all that fancy equipment?

It's unfair that only young, single people are eligible. A wonderful term, by the way. It implies the whole thing's a prize, rather than an albatross. (See Gramps, another lit ref!) Me, I figure that if you've got to go, you might as well spice it up with a little sex. Though I guess the Reds might not want their spouses to get a taste of Blue liberation. And I'm sure the religious Reds would go nuts. Though, is it really adultery if it's the same body?

But maybe the singles-only thing is such a bad idea. I doubt that most Red women are as hot as those country music chicks that seem to be their number one export. Not to mention what would happen if a straight Red got swapped into a Blue's gay marriage.

As far as I can tell, getting tagged in the lottery's kind of like getting hit by lightning. But there must be at least one bug left, because it seems that the more you are, the more likely it is to happen. What's the point in that? Let the wishy-washies go wishy-wash the opposite direction for a while, if that's what they want so badly. Why inflict it on the rest of us?

There's no way out, though. They know exactly when those interrupts are coming, and even as I stared at it

RICHARD A

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new message telling me my counterpart had read his and I had ninety minutes to proceed to the nearest Exchange station *(click here for directions)*, which was generous, because before waking up the computer, I'd already showered, touched up the orange-and-green dye job in my goatee, and eaten breakfast.

Briefly, I wished I'd had something more memorable than a bowl of cereal and half a grapefruit. I had no idea what I'd be eating for the next month, but it would probably be something Neanderthal, like fried eggs and sausage, dipped in cholesterol. Or Bambi steaks, fresh from your local poacher. I stared at the computer screen and tried to prepare. "Y'all, Bubba," I mouthed. "Ah'm just a good ol' country boy."

Yeah, right. I'm an urban Blue. Always have been, always will be. Which was probably why I'd gotten sentenced to a month of this, rather than just a week. It was enough to make you purple with anger. Which I guess was the goal, right? Meanwhile, some damn Red was going to have my life. I wasn't sure which was scarier: that, or wherever it might be that I was going.

It turned out to be Iowa.

Let me tell you what I know about Iowa.

It's colder than hell in the winter.

They grow corn.

They feed it to hogs.

Hogs are pigs.

Pigs stink.

That pretty much covers it. Except, of course, it was late July, so forget the cold bit. And I think some of the corn winds up as biofuel.

My counterpart's Exchange was in Cantril, wherever the hell that was. "Almost in Missouri," the agent said when I asked. Gee, thanks. If there's anything worse than Iowa, it's got to be Missouri.

My host body was what Hemingway might have called a "strapping young farmboy," if he'd been into phrases like that. More likely, he'd have said tall, muscular, and red. Red of hair, red of sunburn, and red of complexion. Red of heatstroke, I'd have added when I stepped outside. I'd used the term "redneck" all my life, but it was only when I hit that heat that I realized where it came from. Cripes. How can anyone live in a place like this? It's like breathing soup. My host himself, of course, was off learning how to pour lattes in a climate where "muggy" was eighty degrees and thirty percent humidity. I hoped he was enjoying it. No, I hoped the first thing he did was scald himself with the espresso machine. If you're not careful, the steam'll get you good. And by the time I get back, any burns he gets in his first week will be healed. Hurrah for small favors. I just hope my friends don't think I suddenly went nuts. It's got to be a lot harder for a Red to blend in with Blues than for me to pass as a Neanderthal, back here.

At least the other guy can't get me fired from my real job. I don't know much about the Exchange, but I do know there's a law against that. If he goofs off, spouts a bunch of politically in-C junk, or otherwise screws up, they'll deal with him when he gets back here. Just as, unfortunately, they'll deal with me back home if I don't toe the line here, like a good little Red.

Luckily, I've got a kind of ghost memory from my host's subconscious to tell me what that entails. Proper behavior in a Red state isn't one of the things they teach in Left Coast colleges. Though I suppose luck has nothing to do with it. The Exchange wouldn't work if you didn't have something to tell you the basics. In days to come, I'd be relying a lot on the shadow of Bubba's subconscious.

Actually, his name was Anthony. Not Tony, the subconscious firmly informed me. All three syllables were equally important. Probably the only form of equality the guy practiced. My own name, by the way, is Aidan. Accent on the second syllable. What a weird coincidence that

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the Exchange matched me up with someone else who's also nutty about his name. You wouldn't think this doofus and I would have even that much in common.

While it was at it, the subconscious also informed me that today's weather was nothing extreme. Hello, liquid atmosphere. I'd be breathing it for most of the month. Oh joy.

Anthony's job proved to be construction. Not the fun stuff, like driving giant, crawly machines with air-conditioned cabs: he worked for a small-time contractor who made homes. And barns. If the folks back home found out, I'd never live this down. The subconscious was also serving up memories of hammers and nails, rather than the nifty blitz-build equipment you see in cities, where they come in with derricks and cranes, and the next day there's an eighty-plex condo just waiting for tenants. Even by Red standards, this Cantril place must be strictly small time.

If anything, that proved to be an overstatement. The Exchange was in a two-story brick building that also housed a dentist, an attorney, and a lot of unused space on a main street that couldn't have been more than a couple blocks long, even if you counted the boarded-up buildings at the far end. Definitely a place that had seen better days.

Anthony's boss was waiting for me in a pickup truck that looked like it guzzled enough biodiesel for a whole fleet of EcoMizers.

"That's because it's a working truck," he said, when I mentioned the waste. "We use it to haul things. Big things. A lot more important than your sorry ass."

His name was Kurt, and he was fully briefed on who I was. "Nobody else knows," he said. "The Exchange asked for that, and I said it was okay. But if you can't keep a lid on that mouth of yours, people are gonna figure out, real quick. That's also okay by me, but you might find it makes for an interesting month. Not in the good sense, if you know what I mean."

The truck had no air conditioning, and the work site was about a million miles away, in a location Kurt referred to as northeastern Van Buren County. Okay, I'm exaggerating: it only took thirty-five minutes, but we spent the last dozen on chuggy gravel that Kurt seemed to believe he could drive at forty miles an hour. What was wrong with these people? Couldn't they afford *real* roads? I couldn't believe I was stuck here, in some no-account county named for a no-account president who I bet even the historians can't remember.

Gradually, it dawned on me that we weren't seeing many other vehicles, and that for being so empty, this place had an unbelievable number of roads, ruled out like the devil's own chessboard. So, okay, maybe it didn't make sense to pave them all.

On the rare occasions when we did encounter other cars, Kurt slowed, rolled up his window, and, with his hand back on the wheel, laconically flapped a couple of fingers at the other driver. That was one more finger than I was in the mood to give anyone, but obviously it was a farmer hello. That much I could figure out. But the slowing down bit had me baffled.

Anthony's subconscious wasn't giving me much help, merely the information that he viewed this as normal. About the fifth time, my curiosity overwhelmed my better judgment. "What the hell's that about?" I asked. "Are you folks in some kind of competition to prove whose time is least valuable?"

Kurt looked at me a long moment, and I was sure he was going to tell me again about the perils of an overly interesting month. But hell, I was supposedly here to learn about these people. How can you learn if you don't ask?

Eventually, he shook his head with something that seemed weirdly like pity. "Dust," he said.

Reds obviously have their own way of

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thinking. "Okay," I said, taking care to enunciate carefully. "So that's why you roll up the window. But why the big show of slowing down?"

Kurt sighed. "Because we're making dust, too. That way it can settle a bit before the other guy has to drive through it. We call it being neighborly. It's only folks down from Des Moines who are in too much hurry to do it."

He seemed to think Des Moines was a big city, but I figured I'd better let that one pass.

"When you drive around these parts," he continued, "you might try it. People'll like you a lot better."

It hadn't crossed my mind that I might have access to a car, though now that I thought about it, the bus service out here must really suck. I patted my pocket for a key, and sure enough, I had a whole ring of them, one of which looked suspiciously automotive. "Wow. So do I have a truck, too?"

This time Kurt's look was amused. "What, you think I pay you enough for that? Even I don't drive this thing except on business."

That raised another question. Further self-inventory revealed a wallet containing eighty-three dollars, plus two credit cards.

"Can I spend Anthony's money?" And, was Anthony busily bottoming out my own account, back home?

Kurt shrugged. "Beats me. Didn't they tell you?"

Actually, they probably had. A couple of years ago, when they'd registered me for the lottery, I'd been sent about five megabytes of rules, regulations, "backgrounders," and the like. But who pays attention to that type of junk?

Fortunately, back in Cantril, the Exchange agent had given me a whole podful of docs that probably contained the same information. I had about a million questions, so I plugged the pod into my vidbook (or I guess I should say Anthony's vidbook) and between bounces, tried to find at least a few answers. Could I use Anthony's money to buy groceries? Could he use mine to rent a bulldozer and go wreck the planet? Would I be liable if I mashed his thumb with a hammer? Would he, if he smashed up my body, driving drunk?

Answers: no, no, probably not, and yes. On the money thing, the key was that we would each be spending our own, except for ongoing commitments like rent and loans.

The eighty-three dollars appeared to be mine to do with as I wanted. But if I used Anthony's credit card, the payment would be logged to my account. And vice versa, I presumed. I also learned that Kurt was being reimbursed for whatever "inefficiencies" I might introduce into his business, but that he had a legal right of indemnification against me for anything deliberate or reckless. Bottom line: I could bankrupt myself very easily. Not that I had all that much to lose. Maybe that was another reason they limited the Exchange to folks under thirty. The ones who voted it in weren't about to risk their retirements.

Then we hit a particularly nasty stretch of gravel, and I decided to save the rest for later. Working vehicle or not, I didn't think Kurt would like it if I barfed Anthony's cholesterol-fest breakfast all over the inside of his truck.

The house we were building wasn't much more than a hole in the ground, enclosing concrete walls that would someday be a basement.

"Here," Kurt said, handing me an oversized paintbrush and a three-ton bucket of something black and sticky-looking. "Have fun."

My job, he explained, was "tarring" the outside of the walls to keep water from seeping into the basement. "It's not the Mona Lisa. Just slop it on."

I was about to complain—wasn't there some kind of automated equipment to do such things?—but Anthony's subconscious sort of sighed, and I realized I wasn't being picked on for being

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Blue. Apparently, Anthony was both cheap labor and low man on this crew's totem pole. If a job was hot, miserable, and messy, it would be his, and therefore mine. Hell, compared to this, he might actually *like* the espresso machine.

I'm sure there's a way to tar a foundation without getting the stuff in your hair, but there's a limit to the amount of information you can drag from an Exchange host's subconscious. When it came to job skills, I was pretty much learning from scratch.

Kurt wasn't a mean boss. In fact, he was a lot better than some I'd encountered in my real life.

"Good enough," he said after making me touch up a few places where he thought I'd gone a bit light with the tar. "Go ahead and call it a day. Do you know how to get home?"

Most likely, that was in the information the Exchange agent had given me, but Kurt's subconscious seemed to have that one down cold. The mere thought brought an image of the car: an aging Hyundai Micro with holes in the fenders. Not much of a car, actually.

The reality was even worse when I spied it in all its rusting glory. "It's nothing but a jalopy!" I almost blurted, only realizing at the last moment that remarks like that would give me away and open me to a whole month's persecution from all of these Reds.

Still, it was rather amazing that the thing ran at all.

Anthony's home turned out to be a bungalow in a town called Troy.

The lit major in me instantly coughed up an image of giant wooden horses, but in this case, what was being smuggled in was me, pretending to be Anthony. And besides, there was nothing to conquer except three rooms and a big gray cat the subconscious hadn't bothered to warn me about.

A cat? I mean, what kind of Red male owns a cat? What kind of male of any kind, for that matter? I thought cats were for old ladies.

Other than that, though, I was impressed that he had a whole house to himself. It wasn't huge, but there was no way I could have afforded anything like it back home. Though I could definitely do without the cat, which kept bumping up against my leg and yowling with what I presumed to be *feed me* demands.

Anthony's car had been even worse than it looked. To begin with, it was so old that the GreenPwr charger was a clunky-looking affair that took up half the back seat and had obviously been installed as an afterthought. Not that there'd been any use for it out at the construction site, because there was nothing to plug it into. A couple of nearby farms had windmills, but not our site. Apparently you don't build those until sometime after you're done with foundation tarring. Not that it mattered. There hadn't been a puff of breeze all afternoon.

Just try combining a windless day with a million degrees and 99.9 percent humidity. No wonder these people are weird. Extreme heat equals extreme politics? Too bad I'd not thought of that one back at ol' Redwood Coast U. There, it never gets hot, and everyone's sane. It's the same back home. Here, in Red Central, it was freakin' hot as Hell. Not to mention Gramps down in Texas, where the weather's got to be even worse. A nice, consistent pattern. No way anyone could call *that* oversimplified.

Of course, it might just be crappy cars that made everyone crazy. Leaving the construction site, I got a weird whiff of dust, but it wasn't until miles later that I glanced down and saw gravel speeding by beneath, through an honest-to-hell *hole* in the floorboards. I damn near panicked and ran off the road before Anthony's subconscious assured me that this wasn't anything new. Something to do with years of winter road salt,

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tracked in on his boots. Freakin' hell. He apparently had this idea that someday he'd deal with it by welding a steel plate over the hole, but as best I could tell, "someday" was an exceedingly vague term.

Now, with the cat again bumping against my leg, congratulating me for having found the can opener and about ten times too much food, I couldn't decide which was weirder: having your own home on a barely above minimum-wage job, or taking it for granted that winter would rust holes in your car. And why the hell hadn't he fixed it? It was big enough that a rock could bounce right up through it and hit you, hard. Big enough that if I dropped something on the floor, like the damn Exchange pod, I might lose it entirely.

I spent a far more studious evening than I ever did in college, pleased to discover that Anthony's refrigerator ("fridge," his subconscious quaintly called it) was stocked with a large array of what turned out to be quite decent microbrews. That was nearly as big a surprise as the cat; I'd not have expected Anthony to know the difference between piss and pilsner.

By the time I turned in, I pretty much knew where I stood, though I'm afraid it didn't help much. I was still stuck in Iowa, with thirty more days to go. And Anthony's subconscious hadn't been hiding any great secrets from me, such as a BMW electric in Mr. Fix-It's Garage in whatever the hell passed for a city around here. The depressing fact was that despite his taste in beer and homeowner status, Anthony didn't amount to much.

The next morning, Kurt called at dawn and told me I was on the roofing crew. Though when I got there, it seemed to be the same "crew" as before. But now we were in a burg called Milton, where he'd managed to line up something like six roofing jobs and was doing them all at once while waiting for something or other regarding yesterday's house. Whatever it was, we weren't just waiting for the tar to dry because I knew from experience the damn stuff didn't take that long. I'd had to cut big clots of it out of Anthony's hair when I woke up in the morning. Afterward, I'd found a bottle of nail-polish remover in the medicine cabinet. It gave me pause for a sec—believe me, I'm as liberal as the next guy, but for one panicked moment I wondered what the hell kind of private life I was supposed to be leading. Then it clicked. What do you bet it dissolves the gunk? Too bad his subconscious hadn't let me know before I massacred his 'do. Not that the hair had been any great shakes to begin with, though who knows about these Bubba styles.

The freakin' subconscious *did* tell me that Anthony calls his barber "Pete," and that they shoot the breeze endlessly about baseball. No surprise on that: there was a whole file on baseball in the pod. But I'd be damned if I'd memorize it. Not my sport. Not that I have a sport, actually. I wasn't exactly into that kind of stuff as a kid, which was okay, because in my group, not being into things was way cool.

Kurt must have offered the folks in Milton a quantity discount on roofs. Or maybe he'd been saving them up to do all at once.

Last night's research had informed me that all of these small towns had been slowly dying for decades, until suburban flight began sending people back from the cities. Now, they were growing again, though there were still a lot of empty buildings, which was why someone like Anthony could afford a house. And probably why Kurt could mass-produce roofing jobs: a lot of these houses probably hadn't been cared for in ages.

What the pod info hadn't told me was that shingles were heavy. And for some reason, Anthony's subconscious hadn't told me, either. I'd been noticing, in fact,

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that the more familiar I became with his life, the harder it was to get in touch with his subconscious. Except about baseball. The guy must have lived and breathed the stuff. The mere thought brought up the most asinine trivia. Who was the last pinch hitter to hit for the cycle in the World Series? Who gives a rip? For that matter, what's the cycle? Subconscious memory must be like Swiss cheese. Want anything specific, like why the hell Anthony didn't know shingles were heavy, and it disappears in one of the holes. But the damn pinch hitter was Tyree Domingo, and he did it in 2017. Good for Tyree.

The shingles came in thirty-five-kilo bags. Kurt had a hoist that could lift them to the roof, but getting the hoist to Milton required hauling it over on a flatbed from somewhere else, and part of roofing on the cheap was not doing things like that.

"Each time you go up the ladder," he said as we were drinking coffee at 7:55 and psyching up for work, just like normal folks, "bring a bag up with you. That'll save some time."

In the mirror that morning, I'd noticed that Anthony was big, but not brawny. All beer, no gym. Back home, I'm leaner, but I don't like gyms either.

Now I discovered that I was the only one who couldn't get a bag up the damn ladder. I got about halfway, then Anthony's arm cramped and I dropped it. The bag burst, scattering shingles on the ground.

I won't bother to repeat what I said; when it comes to swearing, nobody beats a truly pissed-off Blue.

Everyone had seen it happen, so I went back down and picked up as many shingles as I could, thinking about the "inefficiencies" I was introducing into Kurt's crew. I learned another lesson along the way: loose shingles are hard to carry. I only got about a quarter of them in the first attempt, so I went up and down a total of four times. Four and a half, if you count the one where I dropped the bag.

All the while, everyone was still watching me but not saying anything. It was uncanny, and I didn't have a clue how to react. And of course, Anthony's subconscious was deeply in Swiss-cheese mode, because it wasn't giving me anything at all. Obviously, I'd done something wrong, but it was *Anthony's* arm that had cramped. What was I supposed to have done about it?

Three days later, I finally got a bag of shingles up the ladder.

By that time, Kurt had divided his crew among the roofs, two to each. I was teamed with Joe, an evening-shift highway patrolman who moonlighted—or should I say "daylighted"?—for Kurt. I suppose that goes with small town life: a lot of people here seemed to have multiple jobs. In fact, the customer was a farmer who also taught (are you ready for this?) American lit and composition part time at the local high school. He didn't seem all that dumb, either. Luckily, Anthony had gone to school in Troy because if this guy had been one of his teachers, I might have had some trouble pulling off my Anthony impression. Especially because the Swiss-cheese holes were continuing to grow. For example, even though Anthony had clearly worked with Joe before, the subconscious wouldn't tell me whether he was a good guy (whatever that might mean for a Red) or a jerk. It was almost as though Anthony viewed him as a nonentity. In fact, the only folks the subconscious seemed all that interested in were Anthony's sports-bar buddies, who called every evening to tell me where to meet for the game of the night. The subconscious wanted me to go, but I told 'em the cat was sick.

I figured out quickly enough on my own, though, that Joe was a lot better than me at roofing. There's an art to laying out the shingles in straight lines so they not only look good but all the little wires connect up. Partly, I was dealing

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with the problem I'd had before: not much job skill info in the subconscious, even when you can summon anything up at all. But Anthony didn't even seem to *know* that Joe was good at this.

Once I got the knack, it actually wasn't all that tough, though you had to pay attention. You also had to check for bad connections or defective shingles. Otherwise, the roof wouldn't operate at full power, and what use is a solar roof that doesn't make electricity?

The first day, I'd wrecked about half the shingles in the bag I'd dropped. After that, when I started to cramp, I'd managed to get back down to ground level before letting go. And I got a couple of steps higher each day.

Now, as I plopped the bag onto the roof, Joe gave a minute nod. "I always knew you could do it," he said.

For some reason, that prompted the subconscious into serving up its first true memory of him. It was startlingly vivid, standing on a similar roof, not far from a freeway, watching the cars zip by.

"All that crime going on out there," he'd said, "and I'm not there to do anything about it."

Anthony had thought it weird, but it made sense to me. A cop, enforcing the speed limit by night. Building solar roofs by day. Joe might be a law-and-order Red, but he was doing more for energy conservation than all of my Redwood Coast bull sessions combined. Gotta give him points for that.

The following Tuesday, Xavier fell off the roof. Not the roof I was working on, thank goodness, or any of Kurt's initial half dozen. With the tax rebates, a solar roof will pay for itself in five to seven years (I'd lost count of the number of times I'd heard Kurt give that spiel), and as long as we were in town, he was lining up jobs faster than we could get to them.

I don't do well with blood, but this was worse. No wonder ol' Vlad the Impaler lives on in horror myth, even if the stories have nothing to do with his real crimes. When we studied mythology in college, I'd never understood what vampires and spikes had in common, but there's nothing like looking at something sticking right through a guy to make you realize that puncture wounds really are one of the worst horrors imaginable. Now that I think of it, I'd had the same gut-wrenching sensation during my brief fling with Catholicism, rebelling against my atheist parents. It wasn't the fact that Jesus died that got to me: it was the damn *nails*.

I'm an agnostic now, but Xavier apparently wasn't, because he wore a big silver cross, plain to see. The crew was split at the time, with Joe and me working one roof, and Xavier and two others on a larger one across the street. I didn't see him slip, but I heard the yell and looked up in time to see him crash into a bush in the front yard. Then Joe was swarming down the ladder and dashing off, already shouting into his satphone.

I never quite figured out what it was that Xavier landed on. It was metal and spiky and about three feet long, and it shish-kabobbed his hamstring like a shrimp on a toothpick. Okay, that's a mixed metaphor, but it'll be a long time before I eat either shrimp or shish-kabob again. Whatever it was, it must have been something Xavier's crew had thrown off the roof when they were prepping it for the new shingles. There was always a bunch of such stuff, ranging from metal combing to pieces of heaven knows what, and ripping them up with a claw hammer and flipping them over the edge was the most fun part of the job.

It's the only time I ever saw Kurt get mad. His glare fell first on me, then swiveled to the others, though he didn't say anything until the ambulance finally got there and the medic backed up Joe's assessment that Xavier would not only live, but walk again, "soon enough." Then Kurt let loose. "How many times

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have I got to tell you?" he growled. "Keep a clean site. It was only twelve feet, and he hit a goddamn bush. He should have walked away." Then he spun on his heel and headed for his truck and, presumably, the hospital. "Joe, you're in charge," he called over his shoulder.

That noon, nobody said much. Nobody ate much, either: Xavier was well liked. I took the opportunity to consult Anthony's subconscious. What I found was a surprising amount of guilt. Apparently site cleanup was one of his jobs, though not one he was particularly good at remembering: I'd not been responsible for Xavier's site, but I'd not done anything at mine, either. Thinking back, I remembered that whenever we took a break, Joe walked the perimeter of whatever house we were working on, tossing junk into a tidy pile, well away from the building. I'd thought it was just another aspect of his law-and-order personality. Cop and neat-freak; I figured they went together. Shows what I knew. While the others were finishing lunch, I carefully checked both sites, looking for anything more dangerous than a dandelion. It was odd: back home, I'd never have taken on someone else's job without being asked to do so—and even then I'd have found some creative ways to complain. But I'd never seen anyone hurt like that before, either. Red, Blue, nobody deserves that.

By the time we finished, I'd swear we'd reroofed every house in Milton, though it was probably only one or two percent. It's amazing how many buildings can hide in a town you can walk all the way across in ten minutes.

Xavier was now out of the hospital, on crutches and expected to make a full recovery. Kurt was in a generous mood. "Take Monday off," he said. "You've earned it."

I had no idea what to do with a three-day weekend, but Joe caught me as I was loading tools into the truck. "Any plans?" he asked.

I shook my head. Other than making another dent in Anthony's stock of microbrews there didn't seem to be many options, but Joe was another churchgoer, and he might not approve if I told him. Drinking alone has never been my favorite thing, but even if I could tolerate them, going out with Anthony's baseball friends was a pretty damn sure way to get found out.

"I might be able to arrange something," he said. "Call me in the morning."

That was something I probably couldn't do. I didn't know his last name and unless he was on Anthony's speed dial as Joe-the-Cop, I didn't have much chance of figuring it out. "Why don't you call me?"

Joe looked at me oddly, then nodded. "Okay."

Joe's idea of "in the morning" wasn't quite mine. The call came at 7:15 A.M., an hour at which I'd not intended to be ambulatory. But his suggestion woke me up fast.

"How about hitting the great outdoors?" he asked. "We can't leave until after church, but a couple of the other guys from my men's group can get Monday off."

Crap. It had finally happened. I was being asked to go shoot Bambi. "I'm not sure I've got the energy for hunting," I said, trying to sound like a true, bloodthirsty Red while still backing out.

"Hunting? What on Earth would you hunt at this time of year? No, don't answer that. Someday those friends of yours are going to get you in real trouble. I'm suggesting a river trip. No guns."

That was a pig of another color, or whatever farm aphorism they used around here. When I was a kid, I may not have been worth much at team sports, but trout fishing was my father's only religion, and while that was too

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sedentary (he called it "contemplative") for me, whitewater was an entirely different matter. The main drawback to my latte-pouring job was that there was a limit to the amount of gear I could afford: No doubt I could show these Reds a trick or two, if there was a decent river in this godforsaken place.

There wasn't, of course. Joe was planning a one-day outing on something called the Skookumcookumkinnaka or some such string of syllables that were probably garbled Native American for "Small River that Goes Nowhere, Slowly."

Where it went, actually, was to the Mississippi, which was kind of cool because it brought up images of Mark Twain and Huckleberry Finn, though I'm not sure how much of that was in Iowa. The idea, Joe explained, was to drive to a boat ramp a few miles downstream from the confluence, leave a car, then drive to the start and camp, so we could get an early start on Monday and cover a lot of miles.

"You're welcome to join us at church beforehand," he added, but didn't seem surprised when I declined. Anthony, I suspected, was more into Saturday night sports pub than Sunday morning worship.

That gave me all day Saturday to plan—a task that started by searching Anthony's house for any signs of canoeing or kayaking gear, and ended by driving to Iowa City to see what I could rent.

What I got was a kayak that wasn't great but wasn't a total scow, either, because (surprise) there's apparently some semidecent whitewater down in Missouri and up in Wisconsin. Not that the Skookum-cookum-whatever was going to be even semidecent, but anything's better in a good boat, and since I was spending my money, not Anthony's, nobody was going to yell at me for splurging. While I was at it, I got a piece of scrap metal and a tube of Superglue and dealt with the hole in Anthony's floorboards. I'd gotten used to seeing ground zipping by beneath me, but in some ways, that was scarier than not getting used to it. My patch might not be elegant, but it only cost three bucks and barely took that many minutes. Afterward, I wondered why I'd done it. Back home, I'm as willing as the next guy to postpone chores. Maybe more. But hell, there's no point in over-analyzing that type of stuff. I'd been stuck in Iowa now for . . . wow, more than three weeks. Anyone would be getting at least a bit crazy.

The following morning, I surprised myself by deciding to join Joe at his church. Partly, it was convenient: I could leave Anthony's rattletrap car in the church lot and ride with the others. But mostly, I was curious.

I'm not sure what I expected—maybe a bunch of political preaching that would prove these folks really were Neanderthals. What I got were snickerdoodles. That's right: those sugar-and-cinnamon cookies your mother made when you were a kid. Small-town Methodists, I gather, are into baking.

Of course, the snacks came during social hour, after the preaching, but the sermon was also Mom-and-cookie stuff. Unless I'm missing something and "Blessed are the peacemakers" and "Judge not lest you be judged" are somehow political. All I thought was that it's too bad Reds don't know how to do either, even if it's the same wimpy stuff I used to hear during my Catholic period, back when my father and his cronies were lining up to vote in the Exchange. Still, whoever heard of Reds being as wishy-washy as Dad and my lit prof?

Then it was over, and we were heading for the river.

It lay northeast of Troy, about midway between the Wapsipinicon and the Skunk. Farther north was a river called the Turkey. Bad signs, all around.

But scouting it out, it didn't actually

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look all that unpleasant. It didn't have much current, but it made up for it with mazelike riffles where the rocks were so closely spaced I was going to be wishing for a hinge in a middle of my kayak in order to squeeze through the turns. "Butt-bumpers" is what rafters call such things back home, where there's a real risk of bruising your coccyx. Here the main concern was having to wade the shallow spots in water that was probably half cow piss and farm chemicals.

There were five of us: Joe, me, and three guys I initially thought of as Larry, Moe, and Curly, though eventually their names resolved to Cass, Hamilton, and Parnell. Joe and Hamilton also had kayaks, Cass and Parnell had a scuffed-up canoe that looked older than both of them combined, which might be possible, since Joe, at thirty-two, was the old-timer of our group.

It took all afternoon to set up the car shuttle and pitch camp in the state park where we planned to launch. On a Sunday evening, we were about the only folks there, which was good because Parnell and Cass had enough camping gear to outfit an entire troop of Boy Scouts. Back home, I've done a bit of backpacking, which means my first questions about camping gear are "How big is it?" and "How much does it weigh?" These guys must have been looking for the opposite answers. We might not actually be chasing Bambi, but we were outfitted like a full-blown safari, with folding chairs ranged 'round a roaring bonfire, cast-iron skillets, and a stove that gave off enough heat to boil coffee practically before the pot touched the burner.

Since it was a church group, I was expecting a bunch of hallelujahs and goodie-goodie talk. Instead, someone broke out a flask of pretty good scotch, even if we did have to drink from paper cups. Then, when Hamilton and Cass started talking baseball, Parnell cut them off. "Jeesh guys," he said, "just for once, could we talk about something else?"

With religion and baseball off the menu, I figured the only thing left was politics. I was steeling myself for a round of Blue-bashing equivalent to what my own friends and I would say about Reds, but instead Joe said something about how there was supposed to be a great meteor shower tonight if it wasn't too hazy to see it, and for the rest of the evening we peered at the sky and talked about all kinds of topics, most of them as politically neutral as you can get. Well, not totally neutral, but they were old stuff, from before my time. As a space buff, Joe was still bent out of shape about how two decades ago, we'd turned over the Mars base and the rest of the space program to the Chinese in the aftermath of the Six Days' Secession.

I'll admit I was more interested in discovering that we also had a bottle of brandy, though I did perk up when Joe told Cass and Parnell that at one point there were something like six competing USAs. History's not my thing, and I'd forgotten that Blue states were involved too, even before the Delmarva Confederacy. That was the final secession, the one that left D.C. as the hole in the donut, cut off from everyone else, encouraging the politicos to get serious about doing something to resolve the crisis. The Delmarva folks were Dad's heroes, especially the Virginia Reds who helped force the issue by hooking up with the Delaware and Maryland Blues. As I said, Dad's pretty wishy-washy. How else could he have Reds for heroes?

Eventually, of course, all of that let's-get-together stuff led to the Exchange. Somewhere in the process, we apparently sold off the space program to help balance the budget or something, and Joe was still mad 'cause he has to pay a Net fee to the Chinese each time he views pics from the Titan and Europa rovers. "At ten cents a pop," he said, passing me the scotch, "the Chinese are making more off the Net royalties than the rovers cost them to build. Talk about a bad bargain."

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Even with the scotch and the brandy, all of that history was kind of boring, but overall, the evening was enough to make me praise the Lord for small favors, even if I am an agnostic. Kinda creepy, though, because here I was with a bunch of Reds, having a conversation about shooting stars and the like, just like they were Blues.

It must have been a while since Anthony had slept on the ground because I twisted and turned all night long, only to wake early, with all kinds of irritating little aches and pains.

Even though the sun was barely above the horizon, Parnell was rummaging in a gigantic ice chest in the backseat of his car. A moment later, he straightened, pulling out a margarine tub, which he upended into a skillet, dumping out a translucent lump of something studded with grotesque yellow bubbles and smaller bits of brown stuff.

"What the hell is that?" I asked, forgetting I was in a church group.

"Sausage and eggs. Frozen. It's the easiest way to transport them. Don't worry; it's a lot more appetizing when it's cooked."

Moments later, his industrial-strength stove had converted the whole lot into a tasty scramble. The others were awake by now, and half an hour later, we were on the river, floating into the dawn mists.

The Skookum-Hookum wasn't quite as shallow and bumpy as it had looked, though back home, nobody in their right mind would paddle such a river. But here—hey, if it was this or staying at home with the cat . . . In fact, playing thread-the-needle through the riffles was kind of fun.

Then, leading our little flotilla, I rounded a bend and found a single strand of wire sagging across the water.

"Cripes," I said, backpaddling to a halt as Joe drifted up beside me. "Is that a fence? How can anyone fence a river? Isn't that illegal?"

"Maybe. Fences across navigable rivers are, but what's 'navigable'?"

That was easy. "We're navigating it."

He grinned. "Yeah, but that's by our definition. To a farmer, 'navigable' is anything too deep for cattle to wade. He might think we're trespassing."

"You're kidding."

"I didn't say we are. Just that some sleeping dogs are best left to lie."

By now, Cass and company had caught up and were paddling toward shore, where fenceposts held the wire chest-high above the ground. Joe did the same, but I didn't like the look of the beach. Rather than nice, clean sand, it was heavy, black mud. There had to be a better way.

The wire was only a foot or two above the water, so I climbed out and waded forward, reaching out to lift it for my boat to drift underneath. "Hey," I called, "it's not even barbed."

"Of course not," Joe said. "It's—"

A powerful jolt surged through my wrist, elbow, and shoulder. I yelped, lurched, and nearly fell over backward.

"—electric . . ." He was facing me now, and sounded like a man trying very hard not to laugh.

The others showed no such compunction. "Way to go, Anthony!" someone said. I think it was Hamilton. "Is that how you used to test the power, back on your daddy's farm?"

They could laugh all they wanted. Let Anthony explain, if they were still laughing when he got back. At the moment, I had other matters in mind. "How did you know . . .?" I said to Joe.

He was looking at me oddly again, just as he had when I'd carried that first bag of shingles to the roof. "That the power was on?" he finished, though he had to know that wasn't my intended question. "I didn't. But when you see insulators . . ." He gestured to a pair of white ceramic cylinders, holding the wire out from the fencepost.

Crap. We don't have booby traps like

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that back home. Unless the espresso machine qualifies. Or the parking regulations at Redwood Coast. Figuring those out was nearly as good as taking a course in logic. *Not here, unless this, except for that.* That's a triple negative, I think. Once, I got a ticket for parking my scooter in a reserved spot in an indoor garage. "Reserved!" I'd shouted when I found the ticket, imploringly raising my hands to the heavens. "Where the hell does it say 'Reserved'?" And there it was, painted on the roof, like a direct answer from God. Who the hell checks the roof for parking signs?

Now, my wrist and elbow still hurt just because Anthony's subconscious had flaked out on me again, not bothering to tell me that "no barbs" means "look for insulators." "Crap," I added aloud, because I had to say something.

It was time to apply some of that college education, rather than getting down in the muck to go under the fence on my hands and knees, like a . . . well, these guys might not be hog farmers, but I'd be damned if I'd do it.

I thought a moment, then reached forward with my paddle, intending to lift the wire daintily, without touching it. At the last second, I realized that the paddle was wet. I pulled it back, dried it, then carefully lifted the wire, braced for another jolt. But this time, nothing happened. Moments later, I was back afloat, waiting on the far side for the others to finish dragging their boats through the mud.

Joe was still watching me, though he didn't say anything.

A couple of miles later, we came face to face with one of the reasons for the fence. It was a bull, eyeing us from the middle of the channel.

"Holy . . . cow," I said, this time remembering the company I was keeping, though my choice of bail-out aphorisms wasn't exactly optimal. It had been an unusually muggy morning, and the beast was obviously trying to keep cool. I sympathized, but had no idea what to do.

"Just go around it," Joe said, pulling up beside me.

"You're kidding." I might be a city boy, but even I know that two or three feet of water wasn't going to do much to slow down a ton of angry muscle. "I'm not going anywhere close to a bull."

Joe shot me yet another glance. "It's a cow," he said. "Milking shorthorn by the look of her."

"Oh." Now that I looked, I could see the udder. Still, she was enormous. Heart thumping—and not in the fun way that comes with good whitewater—I steered close to the bank, stroking hard to build up speed. Then, as smoothly as possible, I glided by, attempting to broadcast "nice doggie" thoughts as the big head turned to follow my progress. I survived, so it must have been the right decision.

By the time we reached the Mississippi and stopped for a snack, it was midafternoon. The morning's mugginess had produced mushy-looking clouds that were beginning to coagulate into bigger clumps, but it hadn't rained anytime since my arrival. Nor, for that matter, had it ever gotten chilly enough to require a jacket. But one of the things that comes from growing up near a large, cold ocean is an unwillingness to trust the weather any further than a Red's promise. I didn't care that the forecast was calling for a high of ninety-three degrees; I'd have felt naked without a fleece and a windbreaker in my day bag. When you're wet, the temperature doesn't have to drop all that far to spell trouble. Still, I'd been pretty surreptitious about packing the fleece because as far as I could tell, nobody else was bringing anything warmer than a T-shirt and swimming trunks.

At the moment, though, we were in sunshine, with the worst of the clouds far over toward the southwest, where nobody seemed all that concerned about them. Or at least not Parnell, Cass,

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and Hamilton. Joe was catching a nap. I bet that two-job thing makes him good at it. I certainly wasn't going to be the one to disturb him. I'd already blown it with the fence and the "bull." These folks lived here; surely they knew their own weather.

An hour later, when I was beginning to think we were going to wind up rooting here like a bunch of bushes, Joe stirred, then checked his watch. "Yipes," he said. "Why didn't someone wake me up?" He glanced at the sky. "Time to get going. We've got about seven miles with essentially no current. That's going to take a while."

Anthony's body wasn't really built for hard paddling, but for once I was relying on skills I'd learned myself, rather than ones I'd been trying to dredge out of his subconscious. Still, I suspected I'd pay for it in the morning, even though all of that shingle toting had at least toned a few of the right muscles.

There was very definitely a thunderstorm brewing. I was all for scooting for the take-out point as fast as possible, but a breeze was springing up, and the others were having trouble with it, particularly Cass and Parnell in their big, unwieldy canoe. Joe and I kept pulling ahead, then having to wait.

"Why the hell did we park so far away?" I asked during one of these breaks.

"No choice. Don't you remember the big fight eight or ten years ago, when the state decided to buy up all of this bottomland for a wildlife refuge?" Joe shook his head. "Sometimes you amaze me, Anthony. Don't you pay attention to anything? It was all over the papers: farmers, birders, fishermen, environmentalists, water-skiers, all going at each other. It's why I wanted to come here. There are no longer any roads over there. And in case you haven't noticed, there aren't any motorboats out here, either."

I hadn't noticed, but now that I looked around, the river was empty except for one large ship. "What about that?" I asked, mostly to be obstreperous. I was still trying to digest the image of environmentalists in a Red state.

"It's a *barge,"* Joe said. "Jeesh, Anthony, sometimes I think you *like* playing dumb."

Barges might not have been included in the motorboat ban, but let me tell you, they kick up one hell of a wake. A couple minutes after this one passed, we got bounced around real good. Maybe that's what gave me the idea when, half an hour later, another came by, heading downriver.

"Free ride!" I called. "Follow me!"

This one's wake was magnificent: a four-foot crest that lifted you, then let you slide down ahead of it with only a minimum of paddling to keep station on the wave. There's nothing on a whitewater stream to match it because the source is moving. By angling the right way on the wave, it looked like you could go quite a ways downriver before it carried you too close to shore. I was going damn near seven or eight miles an hour, which, in a kayak, feels like flying.

Behind me, Joe was doing the same, about fifty meters back. Cass and Parnell were also aboard the wave, though they were running directly with it, rather than angling downstream. Drat. I wasn't sure whether this was a problem inherent in the canoe, or if they just didn't have the skill to keep it pointed in the right direction without swamping. Either way, their joy-whoops were steadily falling astern, and Hamilton was angling with them, not us.

I glanced at Joe and we exchanged nods: the type that outdoor folk of all stripes know—mountaineers, fishermen, boaters, SCUBA divers. Wordless communication. In this case: *Damn, time to bail.*

Unwilling just to drop behind the crest and watch it move on without us, we changed angle and started running

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toward shore, like the others. About halfway there, though, strange V-shaped ripples started appearing near the base of the wave.

In whitewater, Vs are produced by current flowing over rocks. Here, the only current was from the wake, which was momentarily revealing something solid, not far beneath the surface.

"Cripes!" I yelled, backpaddling to let the wave run out from under me. But I was still moving quickly when I slammed into something solid, hard enough to rattle my teeth. Another wave passed, bashing me into another object, then another. Then the coffee-colored backwaters were still, with no current to mark the location of whatever the hell it was I'd been playing bumper cars with.

Then Joe was beside me. "Damn," he said, bracing on his paddle and leaning sideways to inspect for damage. "There aren't supposed to be any of those left."

"What *was* it?"

"Stump farm."

Obviously, that wasn't meant to be taken literally. And for once, I actually managed to keep my mouth shut.

Joe had finished his inspection. "Years ago," he said, "when they first dammed the river, they flooded a lot of bottomland. Before the water rose, they cut back the trees, right at a level where you couldn't see them. But that was a long time ago. You'd have thought they'd all have rotted by now."

"Lewis and Clark found something similar on the Columbia River," I said without thinking. "Dead stumps left underwater when a landslide created a pond that raised the water level. They turned out to be hundreds of years old."

Joe had that odd look again, and I realized there was no way Anthony should have known that.

"I read it somewhere," I said, though it sounded unconvincing, even to me. "Probably on the Web." Which was simply digging myself deeper because as far as I'd been able to tell, Anthony didn't read about anything, anywhere, if it wasn't about baseball.

Joe started to say something, but I was saved by a shout from upstream.

In the excitement, I'd forgotten the others. Unlike Joe and me, they hadn't recognized the danger and had blithely surfed into the heart of the stump farm. Or at least as far into it as luck permitted. Hamilton was in the water, swimpushing his kayak toward shore in search of a shallow place to climb back aboard.

The canoe was also swamped, with Parnell clinging to its side. Nearby, Cass was thrashing violently, ignoring the paddle Parnell was extending toward him in the hope of pulling him back to the boat. Why is it that non-swimmers in canoes never wear their damn lifejackets? Or maybe it's something about church outings. Back home there have been lots of famous ones that ended in disasters: drowning, lost in the woods, freezing in blizzards. Trapped in rainstorms too, which was something I'd been trying not to think about. Church is about trust, but outdoor survival is about presuming that nature's out to get you, even more than the parking regs back at Redwood Coast. It's also about thinking before you leap, which none of us had done before riding that wave toward shallow water, which means that I was as guilty as anyone, even if a stump farm was something I'd never have imagined.

All of that came to me later. At the time, I was paddling as hard as I could toward Cass and Parnell, banging into a couple more stumps in the process.

It turned out that Cass wasn't drowning, at least not yet. Rather, he was writhing in agony while trying to stay afloat with one hand clamped under his armpit. He barely acknowledged my shout, and whatever he'd done to himself hurt enough that he wasn't much help when I pulled him partway onto the bow of my boat.

What he'd done turned out to be

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something awful to his hand: something that left one finger bent backward at an angle that made my stomach heave when Joe cajoled him into holding it out for inspection.

Joe looked at the hand, then glanced at the clouds, which were now darker than anything I'd ever seen back home. It didn't take a genius to deduce that we were in for one hell of a lightning storm. If we didn't reach the take-out point by the time it struck, the only way to avoid being fried would be to beach the boats and hide under the canoe, with no warm clothing other than my solitary fleece. Not a pleasant prospect.

Joe didn't look any happier than I felt. "Well," he said to Cass, "I have good news and bad news." He shifted his grip on his friend's arm. "The good news is that this is easy to fix. The bad news—" he yanked hard, producing a sickening click that barely preceded Cass's scream "—is that fixing it hurts a bit. How is it now?"

Cass held it up. It looked like a hand again, though the knuckle was already starting to swell. He flexed it, gingerly. "Not great, but a lot better."

"Good. You'll need to get it checked out when we get home. Meanwhile, anybody got an ibuprofen?"

Of course not. This was a church group. Nobody'd thought to bring anything.

"How about a satphone?" I asked. I'd left Anthony's at home because I'd not wanted to be pestered by his baseball buddies.

Joe looked pained. "It's my day off."

"I've got one, Parnell said. "Except . . ."

Except it had been in a bag that had also contained his lunch, sunscreen, and wallet. Luckily for the wallet, he'd managed to recover the bag when the boat capsized. Unluckily for the phone, he'd not closed the bag after eating lunch.

It wasn't until later that I realized we really were in life-threatening danger. At the time, I just thought we were in trouble. Though I certainly didn't give a Red's ass for our chances of getting out ahead of the storm. Or a Blue's behind, or whatever they say around here. It's weird: one of the things I could have been doing this month was making a list of Red phrases to entertain the folks back home. But except for a few dumb lines on the phone from Anthony's pub buddies, I'd not heard much—though I'm sure Anthony could be just as creative about it as my friends and I were back home, talking about Reds.

Our main problem was that Cass couldn't paddle. He tried, but his hand was continuing to swell, and by the time we got the boats bailed out, he couldn't do much but flail around, one handed. That left Parnell as the sole paddler and, well, the kindest word for Parnell's canoe steering was "erratic."

"Sorry, guys," he said, "but I haven't done this since Boy Scouts. And I wasn't any good at it, back then."

"That's okay," Joe said because that's what you say in such situations, although I could see him checking the sky again. It had passed through "dark" and was heading for blue-black. At least the storm was still keeping its distance. Some quirk of meteorology must be holding it at bay, though it seemed to be taking advantage of it to grow ever more intense. You hear about these Red-state thunderstorms on the news, all the time. Sometimes it seems as though they're magnetically drawn to trailer parks or other vulnerable places—and here we were, on a mile-wide river, with the mother of all storms waiting to pounce.

The solution was one Joe and I cooked up together. I thought it was mostly his idea; he claimed it was mine. The canoe had a line attached to its bow and stern, as did our kayaks, presumably for tying up to nonexistent docks. We removed the spare ropes, and Parnell, who might not have done well at canoeing but had clearly paid attention when the Scouts were talking about knots,

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formed them into a sort of Y-shape that Joe and I could use to tow the canoe. I won't say it was fun, but with Parnell paddling and Cass contributing what he could, we actually made pretty good progress, easily keeping pace with Hamilton, who kept asking what he could do to help.

Amazingly, the storm continued to hold off, though by the time we finally reached the take-out point, the first fat drops were splatting the river and the sky had moved beyond blue-black to a weird shade of green. Or maybe my eyes were deceiving me. Can a sky be green?

We'd only left one car at the take-out: Joe's. Parnell's was back at the park where we'd camped last night, a distressing distance away. In theory, we could all have fit in Joe's car, but Blue state or Red state, you don't leave boats unattended; there's just too much chance of them disappearing.

I'm not a martyr type, but I was the only one with warm clothing so there was only one reasonable option: I stayed, while the others piled into Joe's car. It was while they were gone that I realized the extent of the danger we'd been in. As the storm drew ever nearer, the temperature plummeted—enough that I was beginning to get seriously chilled, fleece and windbreaker notwithstanding. Before the night was over, I would later learn, the mercury would drop nearly to freezing, breaking a 112-year-old record.

Needless to say, when the others returned, we wasted no time lashing the boats to their carriers. Then Cass and Parnell waved good-bye and headed for home, while I rode with Joe and Hamilton, munching potato chips and other leftover camping food.

Five minutes later, the sky exploded. Lightning forked, cloud to cloud. First one bolt, then more, connecting to each other until they ran in circles overhead, like a dog chasing its tail—one circuit, two, then three before the thunder began, following the same loop until the entire sky merged into one continuous growl.

"What the hell was that?" I said. Back home, we don't get many thunderstorms, and never anything like this. "Does it often do things like that around here?"

"Chain lightning," Hamilton said, though I was pretty sure he was guessing. "I've heard of it, but never seen it."

Joe was yet again looking at me oddly. "Around here?"

Oh, crap. "Just a figure of speech."

"'Figure of speech,' my eye." He flipped the windshield wipers to max as the heavens opened in a downpour so hard it was difficult to see the lane markers. "You've been acting weird for days." Now Hamilton was looking at me, too.

"Just not feeling myself—" But Joe clearly wasn't buying it.

Hell. One of the things I'd always been told about Reds was that power was the only thing they respected. And while I was no longer so sure they were all that different from ordinary folks, that didn't mean directness might not be appropriate. As with anyone else, I suppose.

"Well, actually, I'm an Exchange," I said. "They sent me here to see how the other half lives."

I'd expected anger, but instead got nods. "I should have known it was too good," Joe said.

"Huh?"

"Anthony's a screw-up. Give him half a chance, and all he does is goof off. Jeesh, I hope you don't judge all of us by him."

For some reason, those words stung. But that made no sense because he was talking about Anthony, not me.

"When, and for how long?"

I told him and he nodded again. "I remember that day. You actually got that foundation done before quitting time." Which was ironic because if I'd known what was expected, I'd have fallen right into slacker mode—and never have

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found out how good it felt to get a bag of shingles to the roof.

Joe hesitated. "And you've been civil to Roy."

"Why shouldn't I be?" Roy was another guy on the crew. I didn't know much about him because he'd been kind of quiet, though now that I thought about it, Anthony's subconscious did seem to have been urging me to keep my distance. I'd only talked to him once or twice, and the only thing I remembered was being startled to discover that he wasn't a fan of movies where everything went *boom* every couple of minutes. Not what I'd have expected from a Red.

"Because Roy's gay. Anthony's not particularly tolerant of, shall we say, differences. I don't know how many times Kurt's damn near fired you . . . sorry, him."

The sky was still growling and now it unleashed another series of flashes nearly as spectacular as the first.

"Yipes," Hamilton said. "That's not good."

"You're not kidding," Joe said. He shot me another glance. "Welcome to Iowa."

With roofing crew over, I didn't see as much of Joe in the next few days. Then it was time to report back to the Exchange agent in Cantril.

It's odd, but I thought the Exchange was supposed to purple-ize the country by mixing Red and Blue. But I don't remember talking politics with anyone. I mean, I kind of liked some of those guys, but we had our differences. I bet there are a hundred and one topics on which we'd still cancel each other's votes. So what's the point?

Before I left, though, Joe and I traded phones and e-mails. Maybe he'll get out my way sometime and I can introduce him to hiking, mountain style. Or maybe the coast. He'd love them both, and levelheaded backcountry companions are hard to find. But even if he does come out, we'd never talk politics. I'm still Blue; he's still Red. Nothing about my month in Iowa changed that. As I said, we didn't even *talk* about it.

When I got home, I pretty quickly learned that it had been the same for my friends' dealings with Anthony. No politics: just a lot of inconsequential gabbing.

"We figured it out pretty quickly," my coworker Becca said. "He was spending breaks with his nose buried in the sports section. After he 'fessed up, he dragged us all to a baseball game. I didn't even know we had a team. Double A, I think it's called. After that, all he talked was baseball, but who'd have believed it could be so interesting?"

So I repeat: what's the point? ■

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THE UNIVERSE AS WATERMELON

Nicholas Copernicus, who first proposed the heretical theory of a heliocentric universe with the Sun at its center and the Earth demoted to just one of the planets in orbit around it, was absolutely certain that the orbits of the planets must be perfect circles. They had to be, because they were the creations of a perfect God, and a circle is the most perfect of geometrical objects. When Johannes Kepler, after spending most of his career trying to make sense of the meticulous planetary observations of Tycho Brahe, concluded that the orbits of the planets were not circles but ellipses, the discovery sent shock waves through the community of natural philosophers. The discovery led Newton and others to arrive at the inverse square law of gravitational attraction.

A paradigm shift similar to this one has just occurred in observational cosmology. The "surface" from which the cosmic background radiation was emitted may not be a sphere. This discovery is the subject of this column.

About 400,000 years after the initial Big Bang, when the era of exponential inflation was over, things settled down to a slower and steadier rate of expansion. As more space became available for the energy in it, the universe was cooling things down. The early universe was a nearly perfect "liquid plasma" saturated with energy, in which quarks behaved as free particles. As the cooling progressed, the only strongly interacting particles around, quarks, organized themselves into composite mesons, protons, and neutrons. By some process that remains obscure, there was a slight excess of protons and electrons over their antimatter equivalents (antiprotons and positrons). During the high-density stages of the early universe, essentially all of the antimatter paired off with its matter counterparts to annihilate, leaving behind the slight excess of matter particles as "the only game in town." The cooling universe was a "soup" dominated by free electrons and protons. In this environment, a photon of light could travel only a short distance without being absorbed by interacting with one of the free charged particles.

Later, the negative electrons and positive protons tended to pair off, forming neutral hydrogen atoms. In the process, the dominance of free charged particles, which easily absorb photons, was being replaced by light-transparent neutral atoms. The "soup" of the universe was changing from murky black to crystal clear.

The photons that were present in that era had energies that were characteristic of light emitted from an object (the universe) with a temperature of about 2,900 K. (Here, K means "kelvin" and specifies the absolute temperature in Celsius degrees above absolute zero.) As long as the universe was murky black, they were caught in a "ping-pong match" of repeated emission and re-absorption. However, the growing transparency of the universe released them

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from this trap, and they became free photons. Those photons have been traveling through the universe ever since, and we detect them today as the cosmic microwave background radiation (CMB).

However, as the universe expands and space itself stretches, the wavelengths of these CMB photons were also stretched until they are microwave photons characteristic of a very cold object with a temperature of 2.73 K instead of visible light photons characteristic of a hot object with a temperature of 2,900 K. We observe these CMB photons today as microwaves emitted from a "surface" that has not existed for 13 billion years. Parts of that surface were a bit hotter than other parts, and these tiny energy variations show up as variations in the intensities of these microwaves, revealing the structure of the hot surface of the universe at 400,000 years of age.

The Wilkinson Microwave Anisotropy Probe (WMAP) was launched into a high orbit on June 30, 2001 from a Delta II 7425-10 rocket at Cape Canaveral. It used a lunar gravity-assist to put it in orbit at the L2 point of the Sun-Earth system, 940,000 miles behind the Earth, with the Sun on the other side. It detects CMB in five frequency windows between 23 and 94 GHz within two linear polarization channels. The square root of the observation solid angles of the five frequency windows are 0.88°, 0.66°, 0.51°, 0.35°, and 0.22°, respectively, for the lowest to highest frequency. These small-angle measurements of the CMB allowed mapping of the power at a very small angular scale, where the "ringing" of the early universe shows up.

The WMAP data on the CMB intensity as a function of direction is analyzed into "multipoles," the frequencies at which the intensity varies as the angle changes. The high frequency components of this analysis have produced very accurate values of the numerical constants that characterize our universe. The lowest frequency multipole, the "dipole" component, tells us how much the CMB is skewed off center by the motion of the detector through the CMB. It measures how fast and in what direction the Earth-Sun system is moving through the radiation, and acts as a sort of universal "speedometer."

There has been an ongoing problem in understanding the second-lowest frequency multipole, the "quadrupole" component of the CMB radiation. This component characterizes the degree to which the distribution is elongated (positive eccentricity) or squashed in (negative eccentricity) in some spatial direction. The expected value, measured as a temperature variation of the average 2.73 K temperature of the CMB, is ΔT_2=14.5 μK (i.e. micro-kelvin), while the expected value that would be consistent with the other measured multipoles and the standard inflation model of the early universe is ΔT_2=35.4 μK. This discrepancy is called the CMB Quadrupole Puzzle, and it has been troubling astrophysicists and cosmologists ever since the WMAP data was first analyzed.

Recently, Leonardo Campanelli of the University of Ferrara and his colleagues Paolo Cea and Luigi Tedesco at the University of Bari (all in Italy) have provided a possible explanation for the small quadrupole moment of the CMB. They hypothesize that the solution to the CMB Quadrupole Puzzle is that the "surface" from which the CMB was emitted 13 billion years ago was not perfectly spherical, but rather was slightly elongated in one direction, making the early universe slightly spheroidal, with a shape like a watermelon. Their calculations show that this would have the effect of reducing the quadrupole moment of the CMB without affecting the higher frequency moments. They calculate that an "eccentricity" **e**, the ratio of extra radius in the long direction divided by average radius, of **e**=0.0067. In other

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words, the surface that emitted the CMB radiation was about 0.67% larger in one spatial direction than in the other two.

How could this be? In a well-ordered Big Bang, there should be no preferred spatial direction. So how could the universe be slightly larger in one direction? Campanelli and his colleagues provide an answer to this question. The symmetry of the early universe could be broken by the presence of a uniform magnetic field. A universe full for free charged particles would be highly conductive, freezing in the primordial magnetic field, which would diminish as the universe expands. The charged particles of the early universe would move freely in the magnetic field direction, but would be deflected by magnetic forces if they moved in the two directions perpendicular to the field. This would produce a shape asymmetry in the surface from which the CMB was emitted. They also speculated on another mechanism that would create the asymmetry, the presence of a cosmic string, a sort of linear fracture in space, which could produce the observed asymmetry. In any case, if the spheroidal shape of the early universe is actually the solution to the CMB Quadrupole Puzzle, it could have some interesting implications for cosmological calculations, all of which have assumed a spherically symmetric early universe.

This is a science fiction magazine, so let me engage in a bit of SF speculation. I wonder if there is not another answer to the CMB Quadrupole Puzzle. Naïve calculations indicate that our universe should contain a large number of magnetic monopoles (isolated "north" or "south" magnetic charges), yet none of these has ever been seen. The inflationary model of the universe suggests that the number of monopoles was reduced because the monopoles from the Big Bang have a large number of universes in which to end up, not just one. There is even some reason to suspect that each universe contains exactly one magnetic monopole, which is the "nucleating agent" that caused it to "precipitate" from primordial space, like the dust particle at the heart of every raindrop.

So universes may form like bubbles in a freshly opened bottle of beer. If that is so, perhaps they bump together. Perhaps our universe is not spherically symmetric because it was "nudged" by one or more universes next door in the initial stages of its expansion. And if they are that close, perhaps there is a path from one to another.

AV Columns Online: Electronic reprints of over 120 "The Alternate View" columns by John G. Cramer, previously published in *Analog*, are available online at: http://www.npl.washington.edu/av.

Reference:

Ellipsoidal Universe:

"Ellipsoidal Universe Can Solve THE CMB Quadrupole Problem," I. Campanelli, P. Cea, and L. Tedesco, submitted to Physical Review Letters, September, 2006, preprint astro-ph/0606266.■

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Jack Williamson 1908-2006

Jack Williamson died peacefully on Friday, November 10, at his home in Portales, New Mexico, at the age of 98. The numbers barely hint at one of the most astounding careers in our field, and a life ranging literally from covered wagons to computers. He didn't just coexist with those things: he used them in everyday life.

Jack was born on April 29, 1908, in an adobe hut near the mining town of Bisbee, in the territory that had not yet become the state of Arizona. His family moved at least once to Mexico and at least once by covered wagon, eventually winding up as homesteaders in Pep, New Mexico. He had little opportunity for formal education, but read voraciously, finding a particular fascination in the pulp magazines. In 1928 he became part of them, with his first story, "The Metal Man," appearing in the December 1928 *Amazing*.

That marked the beginning of a career that included professional publications in nine decades. His first story in *Astounding* (as *Analog* was then known) was in March 1931, in the second year of the magazine's history, and he appeared here in eight decades. That would be remarkable enough in itself, but he didn't just persist; he continued to grow and adapt to changing times. He had a "slow" period in the 1950s and '60s, which he overcame by collaborating with such notables as James Gunn and Frederick Pohl, and then came back up to full power, producing memorable new work almost until the end. His July 1947 novelette "With Folded Hands . . ." grew into the 1949 novel *The Humanoids,* which remains a chilling cautionary tale more relevant now than ever. His novella "The Ultimate Earth" (published here in 2001) won both Hugo and Nebula awards, and his last novel, *The Stonehenge Gate,* was serialized here just a couple of years ago. In 1976 he became the second recipient of the Grandmaster Nebula awarded by the Science Fiction Writers of America.

In addition to being an important producer of science fiction, he was a key pioneer in gaining academic respect for the field. In the late 1940s he earned degrees from Eastern New Mexico University (in Portales) and the University of Colorado. He taught at ENMU until he "retired" in 1977, but he retained a very active connection with the university (a library there is named for him), and throughout that period was extremely helpful to teachers all over in introducing science fiction to curricula.

His wife, Blanche, died years before him, but he is survived by a brother, a stepdaughter, five stepgrandchildren, and an enormous literary family who will miss him very much.

—Stanley Schmidt

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A Higher Level of Misunderstanding

Carl Frederick

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Illustrated by John Allemand

Interspecies diplomats may have to take "When in Rome . . ." a bit beyond what they're used to!

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Roger stopped at the snack synth for a Hypercoffee and a candy bar before making his way toward a table at the far end of the lounge. There Duncan Frye, Commissioner of the Angloterran Trade Embassy, sat staring morosely out the window onto the jumble of architectural styles of Free Trade City. A file folder lay open in front of him.

"How did we blow it?" he said as Roger pulled up a chair. "We had everything arranged: premier conference room, sterling silver commemorative pens, personalized notebooks, contracts bound in leather binders, translations in English, Nriln, and Delvan. What more could we have done?"

Roger shook his head.

"I don't understand the Nriln," said Duncan, gazing down at the hand-written notes in the folder. "They said the meeting was unsuitable. But what the hell was unsuitable about it?"

"I almost think it was a translator problem," said Roger.

"Translator problem?" Duncan rubbed a hand across his forehead. "They storm off with all their noses in the air. Some translator problem. I had to virtually *beg* them for another negotiating session."

Roger looked down at his hands, acutely aware of his inexperience; he was barely out of grad school. As the recently appointed cultural liaison, he was the only one at the embassy who'd attempted to study the Nriln; one of the many planetary cultures promoting their interests in the free-trade zone of planet Delva. And Roger felt he should have an answer. "Maybe it's the food," he said, softly. "Maybe we're supposed to eat together at these meetings."

"Maybe," said Duncan. "We'll see today, won't we?"

Roger hunted for signs of sarcasm in his boss's voice, but knew it was hopeless; the man was a diplomat, skilled at hiding his feelings.

Duncan smiled, broadly but without mirth. "All right. We have another chance. When the Nriln negotiators arrive for lunch, we will treat them like royalty. This time, perfection." He looked Roger up and down. "For God's sake, straighten your tie."

Just then, the door to the lounge flew open and a heavy-set man lurched in. He looked quickly around and then glowered at the snack synthesizer.

"Who's that?" said Roger, leaning in toward Duncan. "I thought I knew everybody in the embassy."

"Maurice." Duncan spoke in a whisper. "A chef on loan from the Francoterran Consolate."

"Does this mean the food's going to improve around here?"

"Probably not." Duncan closed his file folder. "I'd asked for him to come and oversee the menu for our Nriln luncheon."

"A French chef preparing Nriln cuisine? I wouldn't have thought that . . ."

The chef looked their way. There was murder in his eyes.

"I changed my mind," said Duncan. "We've had the luncheon catered."

"Good." Roger started to unwrap his Zingchocolate bar. "I know what the Nriln eat."

"Uh oh," said Duncan. "He's coming our way. Set your translator to French."

"But he's not wearing a translator."

"Doesn't need one," said Duncan. "He speaks good English. He just doesn't usually choose to."

Duncan and Roger barely had time to put on their translators before Maurice stomped up to the table.

"I have been cruelly insulted," said Maurice, his anger apparent, even through the synthesized voice of the translator. "I, a blue string chef and a student of the book. It is unconscionable."

"I don't really know what—" said Duncan.

"You don't know? Ha." Maurice raised an arm to the ceiling. "You have an official luncheon for Nriln diplomats, and you . . . you . . ." Maurice wrinkled his face as if he'd caught a whiff of some-

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thing vile. ". . . you have it catered." He shook his head. "Catered!" He slapped a hand to his chest as if he were taking an oath. "I, Maurice, a blue string authority on the book and acclaimed as the finest Terran chef on Delva. Catered. How could you? An unforgivable affront."

"Maurice. My dear Maurice." Duncan rose and clasped the chef's other hand. Roger suppressed a smile. His boss was smooth.

"I wouldn't dream of offending you," said Duncan. "And I insisted that we not misuse your highly educated palate by asking you to prepare a meal for aliens. What an abuse of your talent that would be."

Maurice visibly softened. "Yes. You are correct. It would be an abuse."

"So, to spare you, we called the Panstellar Specialty Food Boutique. What else could we do?"

Maurice harrumphed.

"You are justifiably famous for your exquisite pastries," said Duncan. "And I beg you to prepare some for the luncheon. Even if their palates cannot appreciate it, the Nriln cannot fail to be impressed with the artistry of your creations."

Maurice nodded, apparently mollified. But then he pointed a finger at Roger. "You!"

"Me?" squeaked Roger, suddenly pulled into the fray.

"You drink slop!" Maurice pointed to the coffee cup and then over at the snack synthesizer. "From *that!*"

"It's not bad, actually." As soon as the words were out, Roger realized he'd said the wrong thing.

"Not bad!" Maurice steadied himself by leaning on the table. Then he drew himself to his full height. "You have the refinement of a slug." He threw a glance at the ceiling. "Hypercoffee. InfiniTea. Fabricake. Rocket Chips. What kind of names are those? That's not cuisine. That's not even food."

Roger felt compelled to rise to the defense of the synth: a device that combined molecules by shape to create flavor, embedding them in a solid matrix for snacks or in water for beverages.

"It's food to me," said Roger. "You should try it. You might learn something."

"Learn something? Me? You insolent toad. I'm a chef, not a flavor chemist."

Roger, taking pleasure in baiting the man, nibbled at the Hypercoffee cup. "Tasty. The cup's edible as well. Reduces trash, you know."

Maurice's mouth dropped open.

"And it's fat free." Roger took a bite of his candy bar. "And this Zingchocolate's really good."

"Barbarian," Maurice shouted. He turned and strode toward the door. "Why do I even talk to these Angloterrans?" He threw up his hands. "Not even worth the lively wit of the staircase."

"Barbarian?" Roger watched the man go. "If the chef knew the Nriln's taste in food, he'd die of shock." He furrowed his brow. "But what was that stuff about the wit of a staircase?"

"An untranslatable Gallic concept, I suppose," said Duncan. "An idiom, maybe. I don't know." He took the translator from his ear and slipped it into his jacket pocket. "Funny," he said. "Until I got this French-capable translator, I'd no idea how rude the chef really was."

Roger took his translator from his ear and stared at it. "Maybe it's just the translator that's rude." He rolled the little device over in his hand. "Or maybe it's not rudeness at all. He might just be acting the way a French chef should in his culture. And . . ." Roger bit his lower lip. "And maybe that's what's going on with the Nriln. Maybe we're doing something they consider rude."

"Any ideas?"

Roger shook his head, but his eyes were on the snack synth; Maurice had just favored it with an obscene gesture. "'Blue string' clearly meant 'Cordon Bleu'," said Roger, as he watched the chef charge out of the lounge, "but 'a student of the book'? Was that a reli-

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gious reference?"

"Religious?" Duncan chuckled. "Not exactly. *Cuisine Galactica: A Compendium of Recipes and Antidotes*. A must-have for cross-species chefs."

"Then he *could* have prepared the dinner."

"Maybe. But I wasn't prepared to take the chance." Duncan stroked his forehead. "Everything has to be perfect."

"Perfect." Roger toyed with the translator. "You know," he said. "If this thing gave me so much trouble just with French, I wonder what I'm missing with Nriln." He juggled the little device. "I almost wish these new translators didn't work so smoothly. It makes us think we understand what they're saying."

Duncan gave a snort of a laugh. "You do remember that the old ones couldn't tell the semantic difference between olive oil, corn oil, and baby oil?"

"Yeah," said Roger. "The Nriln thought we were monsters." He dropped the translator into his shirt pocket. "But I guess what I'm saying is that I'm not all that worried about understanding their words, but rather about understanding *them.*"

"What's the difference?"

"They're a different species. You might expect them to think about things very differently than we do."

"I doubt it," said Duncan. "There's only one universe. And I've found that sentient species are very similar and comprehendible—aside from petty, linguistic misunderstandings, of course."

"Misunderstandings." Roger laughed. "Yeah. They thought we ate our gods and when we ran out, we made do with wine and cookies. And then when they discovered we ate other mammals, they were shocked. 'We Nriln don't eat our own taxonomic order,' they said. And then . . ." Roger stopped; Duncan looked far from amused.

"I'd hoped," said Duncan, evenly, "that as Cultural Liaison, you'd have been able to prevent those misunderstandings."

Roger stifled a twinge of anger. "Well, here on Delva," he said, "there are very few Nriln with whom to liaise. I'm sorry that you—"

"No. It's not you, Roger. Nothing personal." Duncan waved him quiet. "But I've never really found much value in having cultural liaison officers. By the time they're good enough to help, they generally put in for transfer and go off to study some other culture."

Roger lowered his head and silently catalogued how his cultural knowledge of the Nriln had helped the trade embassy. Yes, he'd discovered the Nriln had no single word for intelligence, didn't even have a single concept covering life. He had indeed found that the Nriln were painfully polite and offended easily, but he'd discovered that too late. Had he not, maybe they'd have avoided the current morass.

A movement outside the window caught Roger's attention. Two Nriln, eyestalks flitting in excitement, were just getting out of a landglider. They carried thin, black cases.

"I think our musicians are here," said Roger, pointing through the glass.

Duncan leaned over and peered out. "Kind of short for Nriln, aren't they? They can't be much over five feet tall."

"Teenagers," said Roger, "the Nriln equivalent."

"What?" Duncan plopped heavily back into his chair. "You hired a kid band to play at a critical embassy luncheon?"

"They were the only Nriln musicians I could find. And they said they'd done it before."

"Teenagers." Duncan shook his head slowly. "God, what next?" He grabbed his file folder and stood. "I'd better go and check on the preparations." He glanced at his Wristocrat-400. "Our guests should be here in about an hour."

Roger took a parting swallow of his Hypercoffee, carefully avoiding the side of the cup that had a bite taken out of it, and then followed Duncan to the door.

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"You know," he said, trying to show off his Nriln cultural knowledge, "the premier Nriln delicacy is an animal—well, actually more of a vegetable. But some people think it's sentient—the Nriln don't have a word for sentience. It looks like a carrot with legs." Duncan walked faster, and Roger hurried to catch up. "And the vegetable makes sounds. The Delvans think it recites poetry, but the Nriln just think it's nonsense words, and you know how the Nriln hate nonsense words." Duncan trotted down the stairs to the private dining room with Roger close behind. "But geez. An intelligent carrot. It sort of boggles the mind."

At the foot of the stairs, Duncan swiveled sharply around. "Enough, Roger. Stop."

Roger grabbed the banister to keep from colliding with his boss. "Sorry."

"All right, then." Duncan turned and continued walking.

In the dining room, Duncan went to examine the table settings while Roger padded over and greeted the two musicians.

"Play your best," said Roger after an exchange of pleasantries.

"Why?" said one of the young Nriln, the taller one. "Is this a funeral?"

Roger cocked his head; wondering if he was having a translator problem. "You can play well, can't you?"

"Of course we can."

"Does a lorbit chew colors?" said the other Nriln, humming tones coming from his four noses.

Roger knew the tones were the equivalent of a laugh, but had no idea what the words signified. "So, you're telling me, 'yes'?"

"Certainly. That's what I said."

"Good." Roger smiled. *Must be slang. There's no way a translator can keep up with slang—especially kid slang.* He looked over the two young Nriln; they looked very much alike. "Are you brothers?" he asked.

"Not yet," said the Shorter Nriln.

Again, Roger doubted his translator.

"Right. Carry on," he said, turning and heading over to where Duncan was tweaking the floral table arrangement—a potted collection of Terran and Nriln flora.

"What was all that about?" said Duncan. "And what's a lorbit?"

"An animal of some sort," said Roger. "I think it changes color like a chameleon. As for the rest, I didn't understand it at all."

"I wouldn't expect to understand Nriln kids." Duncan shrugged. "I can't understand my own son most of the time." He smiled. "An English-to-English translator might help."

"English to English." Roger shifted his gaze to the Nriln musicians. "English to lovely English," he said under his breath.

"Are you all right?" said Duncan.

"Yes!" Roger exclaimed, not as an answer to his boss but as an affirmation to himself. He tapped his forehead. "I've got an idea. Maybe we can overcome these misunderstanding problems."

"Oh?"

"Yeah. I'm going to try to borrow one of the kids' translators for an hour. Then I'll feed the output of his into mine." Roger glanced at his Wristocrat. "I should just have time."

"I don't get it."

"I'll speak into the English-Nriln translator, then use mine to go from Nriln to English. I should get out pretty much the same meaning that I speak in. If I don't, then there's a meaning problem."

"Cute," said Duncan. "But . . ." He swiveled around. One of the Nriln was nibbling at the floral setting. "Hey," Duncan called out. "That's not for eating. It might even be poisonous to you."

"No," said the Nriln, moving back from the table. "I've studied the book. It's food, sort of."

"Well, leave it alone until after the luncheon."

Roger walked up. "I've a little proposition for you," he said to the Nriln, "concerning your translator."

* * *

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In a workshop at the rear of the embassy, Roger laid out his two translators on a table. Using duct tape and a sheet of paper, he made a tube and used it to channel the output of the English-to-Nriln translator into the input of the Nriln-to-English unit. Leaning over the table, with his ear near his translator's output, he tried his idea.

"My aunt's pen is on the table," he said into the Nriln's translator.

In the quiet workshop, he had no difficulty hearing the output. *"The pen of my aunt chooses the table for place."*

"Very interesting," said Roger aloud. *"Very interesting,"* said his translator.

Roger laughed, then shook his head. He knew he had to be more methodical. "The sky is blue," he said.

"The sky has blueness," said the translator.

"The book is mine." *"The book belongs to me."*

"The book is old." *"The book has oldness."*

"The Nriln is here." *"The Nriln chooses here for place."*

"That Nriln is dead." *"That Nriln chooses inertness."*

Roger smiled. He'd already learned something: The Nriln have different words for "is" depending whether it means equality or location, and the Nriln seem to regard death as a location.

But the more pressing issue was why the Nriln had all but broken off negotiations despite a perfect negotiating session.

"Perfect," said Roger.

"Unwilling to be improved upon," said the translator.

"What?"

"Interrogative."

Roger wrinkled his nose in confusion. Perfection almost seemed rude to the Nriln. Maybe he was on to something. "Rude," he said.

"Effing unwilling to be improved."

Roger slapped the table. "Eureka!"

"You smell," said the translator.

"What?" *"Interrogative."*

Roger laughed. "This is ridiculous."

"This has ridiculousness."

Shaking his head, Roger stood upright and stretched his back. Then he retrieved his translator and snapped it back over his ear. He'd learned what he'd needed.

There came a knock.

Opening the door, Roger saw one of the Nriln musicians.

"Norzhen wonders if you are finished with his translator," said the Nriln. "The luncheon's due to start soon."

"Yes," said Roger. "Just finished with it." He shepherded the young Nriln into the workshop. Roger freed the translator from the duct tape and handed it over. "You can help me with something, though."

The Nriln looked at him with crossed eyestalks. Roger knew this was a sign of puzzlement.

"Tell me," said Roger, "Why is it rude for things to be perfect at a meeting?"

The Nriln stiffened. "We don't talk about that."

"About what? Being perfect?"

"No. The other thing."

"What?" said Roger, "you mean manners?"

Again, the Nriln stiffened. "I can't talk about that. If my parents heard, they'd be shocked."

"Really?"

"Yeah." The Nriln crossed its eyestalks again. "Wouldn't yours be?"

"Well"—Roger didn't want the Nriln to think him badly raised—"I never talked to my parents about it."

"Yeah. A good thing you didn't."

Roger shrugged. "All right. Then tell me. What's wrong with a perfect meeting?"

"Well. If you make it too good, people will think you believe you're better than them."

"What?"

"Unless you're dead, of course." The Nriln emitted a flurry of nose-tones. "A funeral can be perfect since an inert Nriln wouldn't think he's better than

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anyone."

"And it's rude to talk about being rude?"

The Nriln fidgeted. "I've got to take Norzhen's translator back to him."

"Okay. I understand," said Roger. "Sorry for the profanity." He led the Nriln to the door. "I'd better get back as well."

As they left the workshop, Roger said, "This is a very important meeting, so I guess I should ask you and what's his name, Norzhen, to play badly. Is that right?"

"Yeah."

"Will you guys do that?"

"Does a lorbit chew colors?"

"Does that mean, you will?" said Roger. "But especially out of a desire to be polite?"

"That's a vulgar way of putting it," said the Nriln, "but yeah, that's about right."

"And the phrase 'chew colors' means 'blend in'?"

"Yeah."

They walked together toward the dining room. As they passed by a window overlooking the front of the embassy, the Nriln pointed. "Hey. They're here. I should get back to Norzhen."

"Yikes!" Roger froze for an instant, his eyes locked on the two Nriln negotiators almost at the front door. Then he set out at full run for the dining room. As he ran, he unstraightened his tie.

Roger burst through the door to the dining room, where he saw Duncan fussing with the place settings.

"Stop," Roger called out breathlessly. "It's got to be sloppy."

"What?" said Duncan, looking up.

Roger rushed to the table. He scooped the sterling silver pens into his pocket, messed up the place settings, pushed a few of the bound contracts onto the floor and knocked over a chair.

"What the hell are you doing?"

Roger didn't take the time to reply. He unarranged the table floral setting and was just in the process of unstraightening a wall-hanging, when Duncan tackled him.

Norzhen, eye stalks quivering, pushed himself back against a wall.

The door opened and the other musician rushed in. Like a periscope, his eyestalks scanned the room. "Flaming lorbits!" he cried out, running over to join Norzhen.

Duncan turned to look. But this gave Roger the opportunity to break free. Duncan lunged at him, pinning his arms to his side. Losing his balance, Roger fell to the carpeted floor. Duncan fell on top of him.

Just then the door opened, and, Magzh and Vorzhnelvar, the two Nriln trade negotiators, walked in.

"Oh, dear," said Magzh. "Are we interrupting something?"

"What?" Duncan scrambled erect. "No. Of course not. Not at all. It's just . . ." He shot out a hand and hauled Roger to his feet. "It's just . . . I do apologize, but I'm afraid my colleague has suddenly come down with . . . with a slight case of insanity." He propelled Roger toward the door and looked over his shoulder at the Nriln. "Nothing serious. We just need to . . . need to get his pills. Please make yourselves comfortable." He pushed Roger ahead of him through the door. "I'll be right back," Duncan called out as the door slammed behind him.

Duncan shoved Roger against a wall. "Are you out of your alleged mind?"

"Let me explain," said Roger. "Disorder is good. And—"

"You have completely lost it."

"Will you listen?"

"Shut up!"

"But—"

"Not a word," said Duncan, "unless you'd like to be transferred to, say, Trelgva, and spend the rest of your career dodging ammonia storms. Is that what you want?"

Roger shook his head.

"Okay then," said Duncan. "This is probably a lost cause, damn it. But we're

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going back in. I'll apologize profusely. And you will do and say nothing. Understood?"

Roger nodded.

"All right, let's go," said Duncan. "And for God's sake, smile."

"I am so dreadfully sorry," said Duncan when they'd returned to the dining room. "My young colleague is much improved." He and Roger sat facing the Nriln. "I know how important the format of a meeting is to you." Duncan spread his hands. "But, under the circumstances, I do hope you won't let this little matter adversely affect the matter of our contract."

"No. Not at all," said Magzh. "These things happen. Don't concern yourself about it at all."

"Don't give it another thought," said Vorzhnelvar. "No apology necessary."

As directed, Roger smiled. He could hardly do otherwise as he contemplated Duncan's obvious confusion; at the previous meeting with the Nriln, every little imperfection had been roundly criticized. The Nriln had each looked down their four noses at every speck of dust, and they'd left the meeting with an air of opera singers who had inadvertently intruded upon a yodeling competition.

"That's . . . That's very good of you," said Duncan. He turned to the musicians. "Play for our guests, please."

The musicians struck up, and even though the sounds were alien, Roger could tell that the young Nriln were playing badly indeed. And by Duncan's face, he could see his boss knew it as well.

"Oh my god," said Duncan in a whisper.

Vorzhnelvar looked first at the floral arrangement and then at the musicians. He pulled a flower from the vase. "You do know," he said, "that this species is an illegal drug among our people, yes?"

"Oh my god," said Duncan, again. "No. I'm sorry. I didn't know."

Magzh slapped the table and Duncan started. Roger though, could see that Magzh was, in his way, smiling.

"We have decided," said Magzh, "that there is no reason to delay." Duncan visibly stiffened. "We will sign the contracts, now."

Duncan's eyes widened. "You will?" He shot an uncomprehending glance at Roger. Roger, for his part, returned a Cheshire cat smile.

"Well, this is wonderful," said Duncan. "I don't know how to thank you. Maybe . . . Yes, I guess we should drink the vazh now—before our lunch." He tapped his Wristocrat, held it to his mouth, and asked for the drinks to be brought in. It would be synth-vazh from Panstellar, which to the Nriln tastes like their ceremonial drink and to humans tastes like melted chocolate ice cream laced with brandy. But more importantly, it is toxic to neither species.

Moments later, Maurice sauntered through the door. He held high a tray bedecked with pastries and also with four tiny glasses of a milky liquid.

Roger, inhaling the sweet, heady aroma of fresh baked goods, began to warm toward the chef. If the pastries tasted even half as good as they smelled . . . Roger felt his mouth water.

As Maurice sauntered toward the table, Magzh made a whistling sound.

A carrot-like creature crawled from the floral arrangement and, while making a similar whistling noise, walked on three rootlike legs across the table to Magzh.

Maurice visibly blanched and froze to the spot, mouth agape.

Magzh grabbed the carrot-thing, ripped off a leg, and ate it.

With a sharp gasp, Maurice dropped the tray.

The crash of glasses against the metal tray seemed to bring the chef out of his shock. He knelt, slid some of the pastries back onto their plates, collected the fallen glasses, and tried to sop up the vazh with a linen napkin, all the while apologizing abjectly and fighting off the

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rugbot that had rolled in from its enclosure to vacuum up the mess.

Duncan apologized as well, but once more, the Nriln were magnanimous.

Roger contemplated the scene. Even with the knowledge that his pastry lust would go unsatisfied, he chuckled under his breath. But Nriln apparently have good hearing and his amusement drew the attention of Vorzhnelvar. The human and Nriln exchanged glances for a moment, and Roger saw humor in those alien eyes. And suddenly, even with their eyestalks, six-fingered hands, and four noses, the Nriln no longer seemed alien.

After the Nriln had left the embassy, Duncan leaned back against a wall and took a few heavy breaths. "What happened?" he said, his eyes wide.

Despite feeling he'd been treated shabbily by his boss, Roger described his new understanding of the Nriln without rancor or recrimination; after all, if the Nriln could be magnanimous, so could he.

Duncan gazed out the window for a few moments. Then he let out a breath through pursed lips and returned his gaze to Roger. "Maybe I've been wrong," he said. "Maybe having a cultural liaison attached to the mission isn't all that bad an idea."

Roger smiled, for, cultural specialist that he was, he understood he'd just been paid a high compliment. ■

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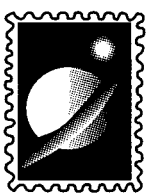

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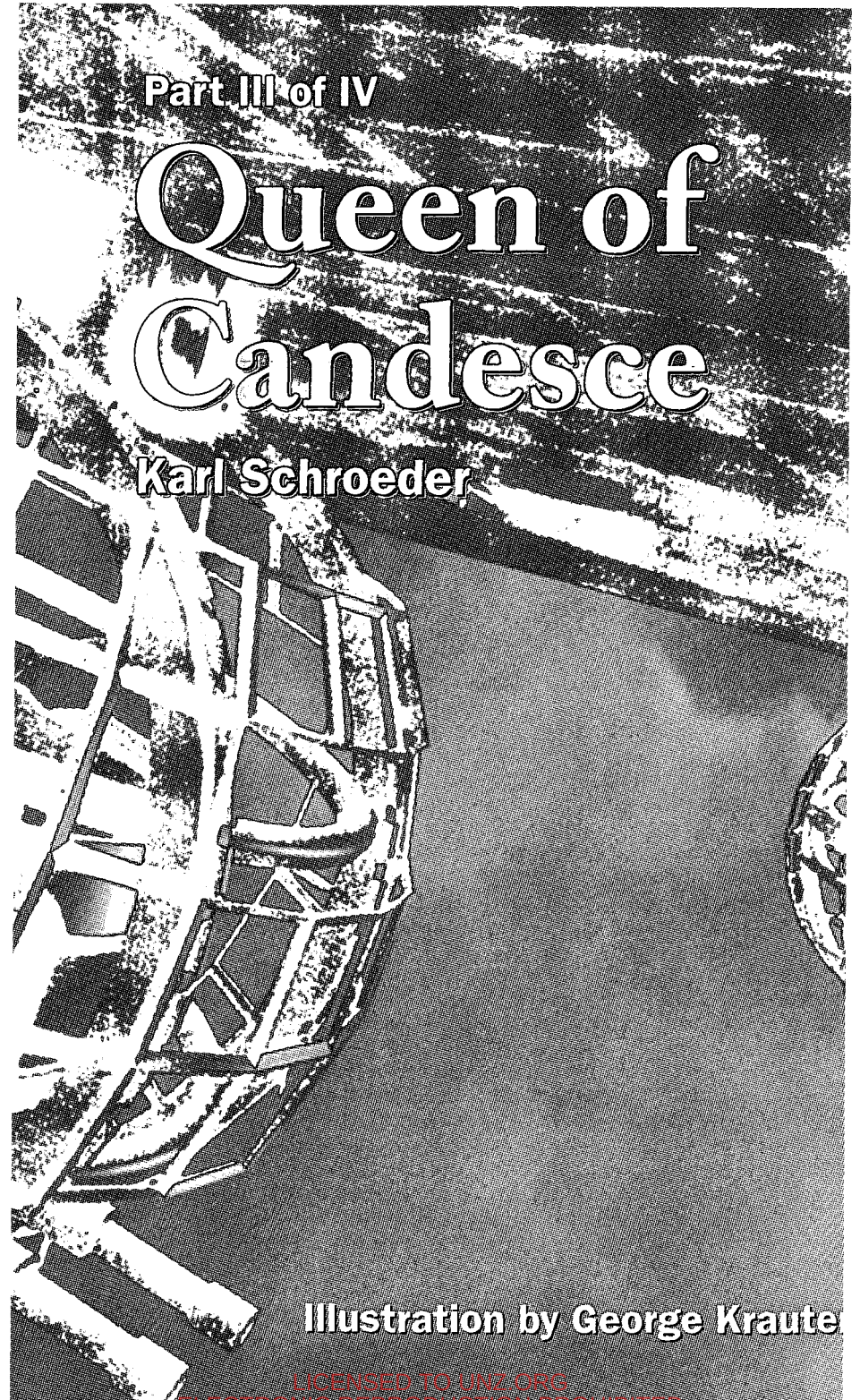
Part III of IV

Queen of Candesce

Karl Schroeder



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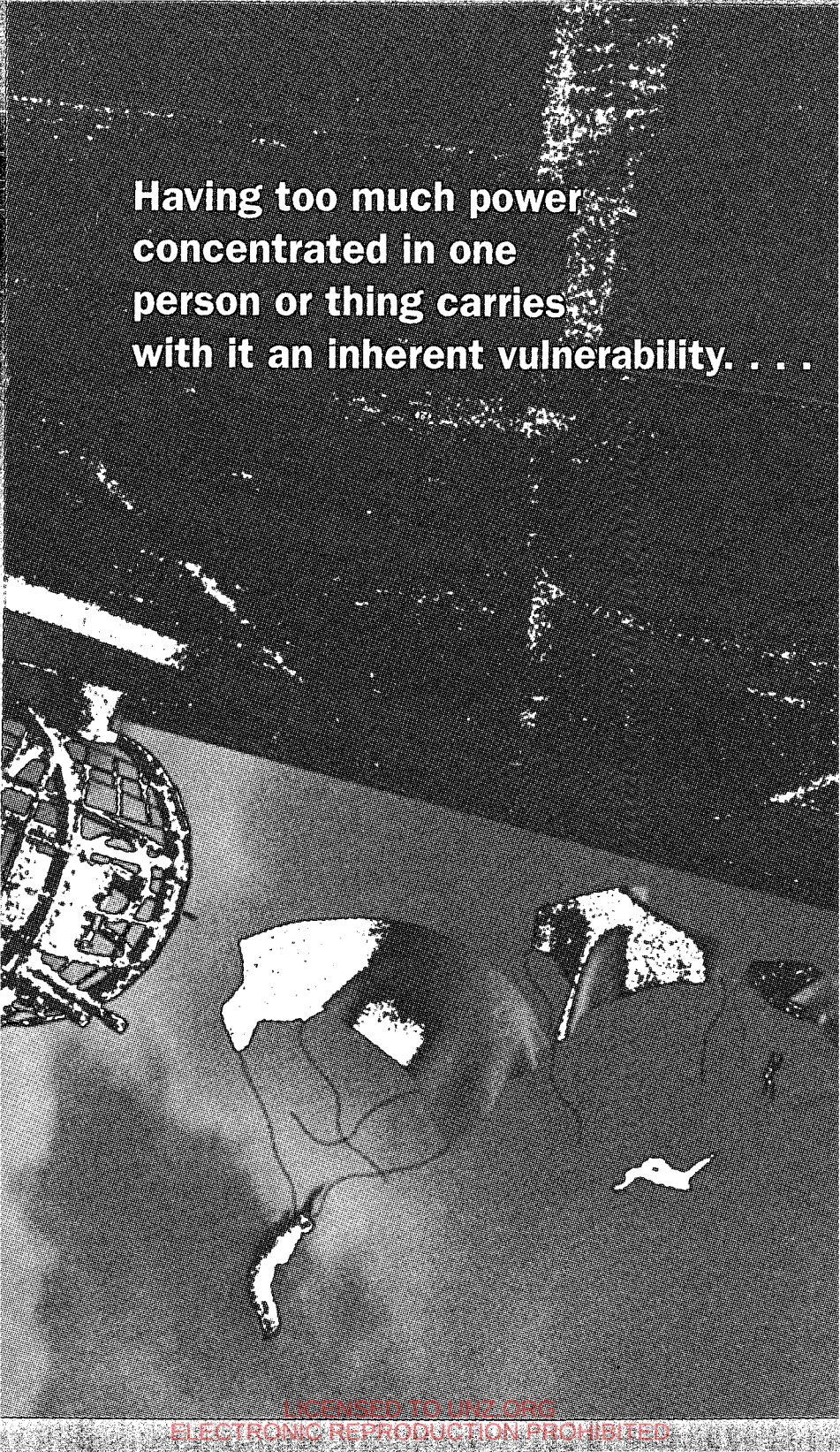

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The Story So Far

A woman is falling from the sky. She's taking a long time doing it, so ***Garth Diamandis****, aging playboy and exile on Greater Spyre, takes his time in setting up her rescue.*

Greater Spyre is circular, a vast open-ended cylinder of metal at least twelve miles in diameter. Spyre is thousands of years old and is slowly falling apart. Its inner surface is paved with dirt and trees and dotted with strange, inward-turned pocket nations. Garth's people have always lived here, either in the paranoid miniature kingdoms of the cylinder, or in the rotating cities that hover in the open air around which Spyre revolves. Few of them have ever taken an interest in the world beyond Spyre; yet this woman has drifted in on the weightless air from that very world.

Garth manages to catch her before she tumbles to death on Spyre's inner surface and takes her home to the damp basement he's called home for the past dozen years or so. It is here that ***Venera Fanning*** *awakens a day later.*

Ah, Venera: sociopath princess, pampered courtier, and spy-mistress; casual murderer, recent savior of the world, and wife of ***Admiral Chatson Fanning*** *of Slipstream. Garth, ladies-man that he is, is immediately besotted with her. But he can't puzzle out her strange story, which involves pirates, betrayal, and ruin at the very heart of the world.*

Some of what she says is familiar. Garth knows that Spyre is one tiny object spinning in the immense artificial world known as Virga. Virga is a hollow sphere—a balloon, essentially—several thousand miles in diameter, orbiting on its own somewhere in deep space. The balloon contains air, water, drifting rocks—all the necessities of life, including man-made fusion suns that light small parts of its vast volume. Nations coalesce around these suns, and the greatest sun is Candesce, which lies at the very center of Virga. There is no gravity in Virga, save that which you can make using centrifugal force. Spyre is one of the most ancient of the habitats built to take advantage of Virga's strange environment.

It is also a place where, once you have arrived, you may never leave. Garth tries to convince Venera of this fact, but she refuses to believe him. She comes from Slipstream, a nation of mile-wide wood-and-rope townwheels and free-floating buildings and farms a thousand miles from Spyre. Born to privilege, used to freedom—and ever sure of herself—she sneaks away from Garth to attempt a grand leap off the edge of Spyre. Before she can reach weightless air and escape, however, she is captured by soldiers of the four-acre nation of Liris. Dragged inside the single cube-shaped stone building that makes up the ancient nation, she is forcibly made into a citizen and called on to serve ***Margit****, Liris's "botanist" or ruler.*

Serving the botanist is educational. Venera learns that the claustrophobic principalities that dot the cylinder's surface are ancient. Some are so old that they still possess treasures taken from Earth when Virga was first made. Liris, for instance, is the only place in the world where cherry trees grow. Liris and its neighbors sell their rarities in the Great Fair of Spyre, and the botanist intends for Venera to work there until the end of her days.

Margit is going to guarantee Venera's loyalty by injecting her with a drug that will cause madness unless regular doses of an antidote are provided. Venera knows that time is running out, but there are things she must know. She visits the Fair to ask about goings-on in the outside world.

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*Almost immediately she learns that her husband, **Admiral Chaison Fanning**, has been reported killed in a great battle on the far side of the world.*

Overcome with ice-cold grief and outrage, Venera confronts Margit in her bedchamber. The two women fight but Venera gets the upper hand, injecting the botanist with her own diabolical drug and sending her screaming into the night. Then, assembling the stunned citizens of Liris, she declares Margit's most tragic victim to be the nation's new botanist. Then she walks away from Liris, with no plan and no home anymore to escape to. Alone, aimless and hopeless, she returns to the one man in Spyre she can trust: Garth Diamandis.

Venera has been listed as a traitor in her adopted home of Slipstream and cannot return to the court intrigues of her childhood home in Hale. For a while she drifts in a state of numb despair, living like a vagabond with Garth Diamandis in the wilds of Greater Spyre. When she learns there may be a way off of Spyre, though, she's faced with making a choice. Either go home and confront the fact of Chaison Fanning's death; or delay the inevitable. She decides to delay, by telling herself that she needs power to exact revenge on those responsible for Chaison's death. She will stay here in Spyre until she has that power.

Garth knows of a way to get it. Observant as he is, he's seen that she carries an ancient signet ring (taken from the treasure of Anetene in the last book) marked with the symbol of a horse. If the ring is what he thinks it is, vast riches may be theirs for the taking. But it won't be easy: to learn the truth they have to brave the deadly airfall, a region of Greater Spyre where the ground has given way and torrents of wind blast down and out of the world. Garth leads Venera along hidden paths to the gates of a forlorn tower that stands alone in the midst of the airfall. There, her ring turns out to work as a key, letting them in to Buridan Tower, which has not been entered in two hundred years.

*Venera takes the identity of **Amandera Thrace-Guiles**, last heir of Buridan, and rises up the Buridan elevator to Lesser Spyre to claim an inheritance that has been waiting for an heir for centuries. Naturally the great powers of Spyre are skeptical of her claim—none more so than **Jacoby Sarto**, spokesman for the feared nation of Sacrus. Sarto does his best to torpedo Venera's claim, an effort that culminates in a confrontation during her confirmation interview. Sacrus, it turns out, is the homeland of Margit. Sarto knows about the key to Candesce and reveals that Sacrus has it.*

*During these escapades Venera also has a run-in with a local insurgent group, which is led by a young man she finds attractive: **Bryce** is of noble background but has adopted the Cause, which is to reintroduce a form of emergent democracy to Spyre, and eventually Virga itself. Venera thinks he's doomed to fail, but he emerges as a key ally as events unfold.*

*So now she has the wealth and power she craved—even if her hold on it is tenuous. What to do? Venera's not willing to admit the growing sense of affection she feels for Garth, or the equally unfamiliar sense of loyalty she's learning. She decides to leave Spyre. At the same time, Garth is completing his own quest, a search for someone named **Selene Diamandis**. They part ways, two battle-scarred veterans of long emotional wars, with no expectation that they will ever meet again.*

12

Spyre was awe-inspiring even at a distance of ten miles. Venera held onto netting in a rear-facing doorway of the passenger liner *Glori-*

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ous Dawn and watched the vast blued circle recede in the distance. First one cloud shot by to obscure a quadrant of her view, then another, then a small team of them that whirled slowly in the ship's wake. They chopped Spyre up into fragmented images: a curve of green trees here, a glint of window in some tower (Liris?). Then, instead of clouds, it was blockhouses and barbed wire flicking by. They were passing the perimeter. She was free.

She turned, facing into the interior of the ship. The velvet-walled galleries were crowded with passengers, mostly visiting delegations returning from the Fair. But a few of the men and women were dressed in the iron and leather of a major nation: Buridan. Her retainers, maids, the Buridan trade delegation . . . she wasn't free yet, not until she had found a way to evade all of them.

Now that she was undisputed head of the Nation of Buridan, Venera had new rights. The right to travel freely, for example; it had only taken a simple request and a travel visa had been delivered to her the next day. Of course she couldn't simply wave goodbye and leave. Nobody was fully convinced that she was who she said she was. So, it had been necessary for her to invent a pointless trade tour of the principalities to justify this trip. And that in turn meant that she could not be traveling alone.

Still—after weeks of running, of being captured by Liris and made chattel; after run-ins with bombers and bombs, hostile nobility and mad botanists—after all of that, she had simply boarded a ship and left. Life was never like you imagined it would be.

And she could just keep going, she knew—all the way back to her home in Rush. The idea was tempting, but it wasn't why she had undertaken this expedition. It was too soon to return home. She didn't yet have enough power to undertake the revenge she planned against the Pilot of Slipstream. If she left now it would be as a thief, with only what she could carry to see her home. No, when she finally did leave Spyre, it must be with power at her back.

The only way to get that power was to increase her holdings here, as well as the faith of the people in her. So, like Liris and all the other nations of Spyre, Buridan would visit the outer world to find *customers*.

Her smile faltered as the last of the barbed wire and mines swept by to vanish among the clouds. True, if she just kept going she wouldn't miss anything of Spyre, she mused. Yet even as she thought this Venera experienced a little flash of memory: of Garth Diamandis laughing in sunlight; then of Eilen leaning on a wall after drinking too much at the party.

Last night Venera too had drunk too much wine, with Garth Diamandis. Sitting in a lounge that smelled of fresh paint and plaster, they had listened to the night noises of the house and talked.

"You're not kidding either of us," he'd said. "You're leaving for good. I know that. So let me tell you now, while I can, that you've stripped many years off my shoulders, Lady Venera Fanning. I hope you find your home intact and waiting for you." He toasted her then.

"I'll prove you wrong about me yet," she'd said. "But what about you?" she asked. "When all of this really is finished with, what are you going to do? Fade into the alleys of the town wheels? Return to your life as a gigolo?"

He shook his head with a smile. "The past is the past. I'm interested in the future. Venera . . . I found her."

Venera had smiled, genuinely happy for him. "Ah. Your mysterious woman. Your prime mover. Well, I'm glad."

He'd nodded vigorously. "She's sent me a letter, telling where and when we can meet. In the morning, you'll head for the docks and your destiny, and I'll be off to the city and mine. So you see, we've both won."

They toasted one another, and Spyre, and eventually the whole world before

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the night became a happy blur.

She kicked off from the ship's netting, almost colliding with one of the crew, and began hauling her way up the corridor to the bow of the ship. One of her new maids fell into formation next to her.

"Is there something wrong, lady?" The maid, Brydda, wrung her hands. Her normally sour face looked even more prudish as she frowned. "Is it leaving Spyre that's upset you so?"

Venera barked a laugh. "It couldn't happen soon enough. No." She kept hand-walking up the rope that led to the bow.

"Can I do anything for you?"

She shot Brydda an appraising look. "You've traveled before, haven't you? You were put onto my staff by the council, I'll bet. To watch me."

"Madam!"

"Oh, don't deny it. Just come with. I need a . . . distraction. You can point out the sights as we go."

"Yes, madam."

They arrived at a forward observation lounge in time for the ship to exit the cloud banks. The *Glorious Dawn* was a typical passenger vessel: a spindle-shaped wooden shell one hundred fifty feet long and forty wide, its surface punctuated with rows of windows and open wicker-work galleries. Big jet nacelles were mounted on short arms at the stern, their whine subdued right now as the ship made a scant fifteen miles per hour through the thinning clouds. The ship's interior was subdivided into staterooms and common areas and contained two big exercise centrifuges. With the engine sound a constant undertone, Venera could easily hear the clink of glassware in the kitchens, muted conversations, and somewhere, a string quartet tuning up. The lounge smelled of coffee and fresh air.

Such a contrast to the *Rook,* the last ship she had flown on. When she'd left it the Slipstream cruiser had stunk of unwashed men, stale air, and rocket exhaust. Its hull had been peppered with bullet holes and scorched by explosions. The engines' roar would pierce your dreams as you slept and the only voices were those of arguing, cursing airmen.

The *Glorious Dawn* was just like every vessel she had ever traveled on prior to the *Rook*. Its luxuries and details were appropriate to one of Venera's station in life; she should be able to put the ship on like a favorite glove. In the normal course of affairs she would never have set foot on a ship like the *Rook,* much less would she have seen it through battle and boarding, pursuit and silent running.

Yet the quiet comforts of the *Glorious Dawn* annoyed her. Venera went right up to the main window of the lounge and peered out. "Tell me where we are," she commanded the maid.

There was distraction to be found in this view. Candesce lay directly ahead, its brilliance too intense to be looked at directly. Venera well knew that light, it had burned her as she'd fled from its embrace. She shielded her eyes with her hand and looked past it.

She saw the principalities of Candesce. Although she had spent a week in a charcoal-harvester's cabin perched on a burnt arm of the sargasso of Leaf's Choir, that place had been too close to Candesce; the white air cradling the sun of suns washed out any details that lay past it. Here, for the first time, she had a clear view of the nations that surrounded that biggest of Virga's artificial lights. And the sight was breathtaking.

Candesce lay at the center of the world, a beacon and a heart to Virga. Anything within a hundred miles of the sun of suns simply vanished in flame, a fact that the principalities exploited to dispose of trash, industrial wastes, and the bodies of their dead. This forbidden zone was completely empty, so Venera could see the whole inner surface of the two-hundred-mile-diameter bubble formed by it. On the far side of Can-

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desce that surface was just a smooth speckled blue-green; in the middle distances Venera could make out dots and glitter, and individual beads of leaf color. As she turned to follow the curve of the material toward her the dots became buildings and the glints became the mirrored surfaces of house-sized spheres of water. The beads of green grew filigreed detail and became forests—dozens or hundreds of trees at a time, with their roots intertwined around some buried ball of dirt and rocks.

Candesce presided at the center of a cloud of city whose inner extent was two hundred miles in diameter—and whose outer reaches could only be guessed at. The fog of habitations and farms receded into blue dimness, behind lattices of white cloud. Back in the darkening airs a hundred or two hundred miles away, smaller suns glowed.

"These are the principalities," said Brydda, sweeping her arm to take in the sight. "Sixty-four nations, countless millions of people moving at the mercy of Candesce's heat."

Venera glanced at her. "What do you mean by that? 'At the mercy of?'"

The maid looked chagrined. "Well, they can't keep station where they please, the way Spyre does. Spyre is fixed in the air, madam, always has been. But these—" she dismissed the principalities with a wave—"they go where the breezes send them. All that keeps them together as nations is the stability of the circulation patterns."

Venera nodded. The cluster of nations she'd grown up in, Meridian, worked the same way. Candesce's prodigious heat had to go somewhere, and beyond the exclusion zone it must form the air into Hadley cells: semi-stable up- and down-drafts. You could enter such a cell at the bottom, near Candesce, and be lofted a hundred miles up, then swept horizontally for another hundred miles, then down again until you reached your starting point. The Meridian Hadley cell was huge—a thousand miles across and twice that in depth—and nearly permanent. Down here in the principalities the heat would make the cells less stable, but quicker and stronger.

"So there's one nation per Hadley cell?" she asked. "That seems altogether too well organized."

The maid laughed. "It's not that simple. The cells break up and merge, but it takes time. Every time Candesce goes into its night cycle the heat stops going out, and the cells falter. Candesce always comes back on in time to start them up again but not without consequence."

Venera understood what she meant by *consequence*. Without predictable airflow, whole nations could break apart, their provinces drifting away from one another, mixing with neighbors and enemies. It had happened often enough in Meridian, where the population was light and obstacles few. Down here, such an event would be catastrophic.

Brydda continued her monologue, pointing out border beacons and other sights of interest. Venera half listened, musing at something she'd known intellectually but not grasped until this moment. She had been inside—had for one night been *in control of*—the most powerful device in the world. Whole cities rose and fell in a slow majestic dance driven by Candesce—as did forests, mists of green food-crops, and isolated buildings, clouds and ships and factories, supply nets a mile across, whale and bird paddocks. Ships and dolphins and ropeways and flapping, foot-finned humans threaded through it all.

She'd had ultimate power in her hands, and had let it go without a thought. Strange.

Venera turned her attention back to Brydda. As the *Glorious Dawn* turned, however, she saw that Spyre lay in a kind of dimple in the surface of the bubble. The giant cylinder disrupted the smooth winds of the cells that surrounded it. Wrapped in its own weather, Spyre was an irritant, a mote in the gargantuan orb of the principalities.

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"How they must hate you," she murmured.

Slipstream had an ambassador at the Fitzmann States, an old and respected principality near Spyre. So it was that Buridan's trade delegation made its first stop there.

For two days Venera feted the local wealthy and talked horses—horses as luxury items, horses as tourist draws, as symbols of state power and a connection to the lost origins of Virga. She convinced no one, but since she was hosting the parties, her guests went away entertained and slightly tipsy. The arrangement suited everyone.

There was nothing scheduled for the third morning, and Venera awoke early with a very strange notion in her head.

Leave now.

She could do it. Oh, it would be so simple. She imagined her marriage bed in her chambers in Rush, and a wave of sorrow came over her. She was up and dressed before her thinking caught up to her actions. She hesitated, while Candesce and the rest of the capital town of Fitzmann still slept. She paced in front of her rented apartment's big windows, shaking her head and muttering. Every now and then she would glance out the window at the dark silhouette of the Slipstream ambassador's residence. She need only make it there and claim asylum, and Spyre and all its machinations would lie behind her.

Slowly, as if her mind were on something else, she slipped a pistol into her bag and reached for a set of wings inside the closet. At that moment there came a knock on her door.

Venera came to herself, shocked to see what she had been doing. She leaned against the wall for a moment, debating whether to step into the closet and shut herself in it. Then she cursed and walked to the door of the suite. "Who's there?" she asked testily.

"It's Brydda, ma'am. I've a letter for you."

"A letter?" She threw open the door and glared at the maid, who was dressed in a nightgown and clutched a white envelope in one hand. She saw Brydda's eyes widen as she took in Venera's fully-dressed state. Venera snatched the letter from her and said, "Lucky thing that I couldn't sleep. But how dare you come to disturb me in the middle of the night over this!"

"I'm sorry!" Brydda curtsied miserably. "The man who delivered it was very insistent that you read it now. He says he needs a signed receipt from you saying you've read it—and he's waiting in the foyer . . ."

Venera flipped the envelope over. The words *Amandera Thrace-Guiles* were written on it. There was no other seal or indication of its origin. Uneasy, Venera retreated into the room. "Wait there a moment." She went over to the writing desk; not seeing a letter opener anywhere handy, she slit the envelope open using the knife she'd been keeping in her vest. Then she unfolded the single sheet under the green desk lamp.

TO: Venera Fanning

FROM: —

SUBJECT: Master Flance, otherwise known as Garth Diamandis

We have arrested your accomplice (above-named). As an exiled criminal, he has no rights in Greater or Lesser Spyre. If you want him to continue living, you will return immediately to Spyre and await our instructions.

She swore and knocked over the writing desk. The lamp broke and went out. "My lady!" shouted Brydda from the doorway.

"Shut up! Get out! Don't disturb me again!" She slammed the door in the maid's face and began pacing, the letter mangled in her fist.

How *dare* they! This was obviously Sacrus asserting their hold over her—but in the most clumsy and insulting manner possible. There was a message in their bluntness and it was simple: They had neither the need nor the pa-

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tience to treat her carefully. She would do as they asked, or they would kill Garth.

Like Garth, they must have thought she was going to run. So why not let her do it? They didn't appear to be concerned that she might alert Slipstream to the theft of the Key to Candesce because they had let her get this far. That was odd—or not so odd, when you considered that the leaders of Sacrus must be as insular and decadent as any of the other pocket nations on the wheel. But why not just let her go?

They must have decided that they needed Buridan's stability. She probably shouldn't read too much into the decision. They could just as easily change their minds and have her killed at any moment.

Anyway, the reasons didn't matter. They had Garth—she had no reason to doubt that—and if she didn't return to Spyre immediately, his death would be her fault.

As her initial anger wore off, Venera sat down on a divan and, reaching in her jacket, brought out the bullet that nestled there. She turned it over in her hands for half an hour and then as Candesce began to ignite in the distant sky, she made her decision.

She slid the dagger back into her vest.

She took the wings from inside the closet and stepped into the hallway. Brydda was asleep in a wing chair under a tall leaded-glass window. Venera walked past her to the servant's stairs and headed for the roof.

Gold-touched by the awakening sun of suns, she took flight in the high winds and lower gravity of the rooftop.

Venera rose on the air, losing weight rapidly as the wind disengaged her from the spin of the town wheel. High above the buildings, among turning cables and hovering birds, she turned her back on the apartment and on the trade delegation of Buridan. She turned her back on Garth Diamandis, and flew toward the residence of the ambassador of Slipstream.

Various scenarios had played themselves out in her mind as she flew. The first was that she could pretend to be the estranged wife of one of the sailors on the *Rook*. Wringing her hands, she could look pathetic and demand news of the expedition.

Venera wasn't good at looking pathetic. Besides, they could legitimately ask what she was doing here, thousands of miles away from Slipstream.

She could claim to be a traveling merchant. Then why ask after the expedition? Perhaps she should say she was from Hale, not Slipstream, a distant relative of Venera Fanning needing news of her.

These and other options ran through her mind as Venera waited next to the tall scrolled doors of the ambassador's office. The moment the door lock clicked, she pushed her way inside and said to the surprised secretary, "My name is Venera Fanning. I need to talk to the ambassador."

The man turned white as a sheet. He practically ran for the inner office and there was a hurried, loud conversation there. Then he stuck his head out the door and said, "You can't be seen here."

"Too late for that, if anyone's watching." She closed the outer door and walked to the inner. The secretary threw it open and stepped aside.

The ambassador of Slipstream was a middle-aged woman with iron-gray hair and the kind of stern features usually reserved for suspicious aunts, school principals, and morals crusaders. She glared at Venera and gestured for her to sit in one of the red leather wing chairs that faced her dark teak desk. "So you're alive," she said as she lowered herself heavily on her side.

"Why shouldn't I be?" Venera was suddenly anxious to the point of panic. "What happened to the others?"

The ambassador sent her a measuring look. "You were separated from your

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husband's expedition?"

"Yes! I've had no news. Just . . . rumors."

"The expeditionary force was destroyed," said the ambassador. She grimaced apologetically. "Your husband's flagship apparently rammed a Falcon dreadnaught, causing a massive explosion that tore both vessels apart. All hands are presumed lost."

"I see . . ." She felt sick, as though this were the first time she'd heard this news.

"I don't think you do see," said the ambassador. She snapped her fingers and her secretary left, returning with a silver tray and two glasses of wine.

"You've shown up at an awkward time," continued the ambassador. "One of your husband's ships did make it back to Rush. The *Severance* limped back into port a couple of weeks ago, and her hull was full of holes. Naturally, the people assumed she was the vanguard of a return from the battle with Mavery. But no—the airmen disembarked and they were laughing, crying, claiming a great victory, and waving away all talk of Mavery. 'No,' they say, 'we've beaten *Falcon!* By the genius of the Pilot and Admiral Fanning, we've forestalled an invasion and saved Slipstream!'

"Can the Pilot deny it? If Fanning himself had returned, with the other ships . . . maybe not. If the airmen of the *Severance* hadn't started throwing around impossible amounts of money, displaying rich jewels and gold chains and talking wildly about a pirate's hoard . . . Well, you see the problem. Falcon is supposed to be an *ally.* And the Pilot's been caught with his pants below his knees, completely unaware of a threat to his nation until after his most popular admiral has extinguished that threat.

"He ordered the crew rounded up, on charges of treason. The official story is that Fanning took some ships on a raid into Falcon and busted open one of their treasuries. He's being court-martialed in absentia, as a traitor and pirate."

"Therefore," said Venera, "if I were to return now . . ."

"You'd be tried as an accessory, at the very least." The ambassador steepled her hands and leaned forward minutely in her chair. "Legally, I'm bound to turn you over for extradition. Except that, should I do so, you'd likely become a lightning rod for dissent. After the riots . . ."

"What riots?"

"Well." She looked uncomfortable. "The Pilot was a bit . . . slow, to act. He didn't round up all of the *Severance*'s airmen quickly enough. And he didn't stem the tide until a good deal of money had flowed into the streets. Apparently, these were no mere trinkets the men were showing off—and they're not treasury items either, they're *plunder*, pure and simple, and ancient to boot. And the people, the people believe the *Severance*, not the Pilot.

"Our last dispatch—that was two days ago—says that the bulk of the crew and officers made it back to the *Severance* and bottled themselves up in it. It's out there now, floating a hundred yards off the admiralty. The Pilot ordered it blown up, and that's when rioting started in the city."

"If you returned now," said the secretary, "there'd be even more bloodshed."

"—And likely your blood would be spilled as an example to others." The ambassador shook her head. "It gets worse, too. The navy's refused the Pilot's command. They won't blow up the *Severance,* they want to know what happened. They're trying to talk the crew out, and there's a three-way standoff now between the Pilot's soldiers, the navy, and the *Severance* herself. It's a real mess."

Venera's pulse was pounding. She wanted to be there, in the admiralty. She knew Chaison's peers, she could rally those men to fight back. They all hated the Pilot, after all.

She slumped back in her chair. "Thank you for telling me this." She

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thought for a minute, then glanced up at the ambassador. "Are you going to have me arrested?"

The older woman shook her head, half smiling. "Not if you make a discreet enough exit from my office. I suggest the back stairs. I can't see how sending you home in chains would do anything but fan the flames at this point."

"Thank you." She stood and looked toward the door the ambassador had pointed at. "I won't forget this."

"Just so long as you never tell anyone that you saw me," said the ambassador with an ironic smile. "So what will you do?"

"I don't know."

"If you stay here in the capital, we might be able to help you—set you up with a job and a place to stay," said the ambassador sympathetically. "It would be below your station, I'm afraid, at least to start . . ."

"Thanks, I'll consider it—and don't worry, if I see you again, I won't be Venera Fanning anymore." Dazed, she pushed through the door into a utilitarian hallway that led to gray tradesmen's stairs. She barely heard the words "Good luck," before the door closed behind her.

Venera went down one flight, then sat on a step and put her chin in her hands. She was trembling but dry eyed.

Now what? The news about the *Severance* had been electrifying. She should board the next ship she could find that was headed for the Meridian countries, and . . . But it might take weeks to get there. She would arrive after the crisis was resolved, if it hadn't been already.

There was one man who could have helped her. Hayden Griffin was flying a fast racing bike, a simple jet engine with a saddle. She'd last seen him at Candesce as the sun of suns blossomed into incandescent life. He was opening the throttle—racing for home—and surely by now he was back in Slipstream. If she'd gone with him when he offered her his hand, none of her present troubles would have happened.

Yet she couldn't do it. Venera had killed Hayden's lover not ten minutes before and simply could not believe that he wouldn't murder her in return if he got the chance.

She hadn't wanted to kill Aubri Mahallan. The woman had lied about her intentions; she had joined the Fanning expedition with the intention of crippling Candesce's defenses. She worked for the outsiders, the alien Artificial Nature that lurked somewhere beyond the skin of Virga. Had Venera not prevented it, Mahallan would have let those incomprehensible forces into Virga and nothing would now be as it was.

Once again Venera took out the bullet and turned it over in her fingers. She had killed the captain of the *Rook* and his bridge crew—shot them with a pistol—in order to save the lives of everyone aboard. Captain Sembry had been about to fire the *Rook*'s scuttling charges during their battle with the pirates. She had shot several other people in battle and killed Mahallan to save the world itself. Just like she'd shot the man who had been about to kill Chaison, on the day they'd met . . .

Either she had killed those people because of a higher purpose, or from naked self-interest. She could admit to being ruthless and callous, even heartless, but Venera did not see herself as fundamentally selfish. She had been bred and raised to be selfish, but she didn't want to be like her sisters or her father. That was the whole reason why she'd escaped life in Hale at her first opportunity.

Venera cursed. If she flew away from Garth Diamandis and the key to Candesce now, she would be admitting that she had killed Aubri Mahallan not to save the world but out of pure spite. She'd be admitting that she'd shot Sembry in the forehead solely to preserve her own life. Could she even claim to have been trying to save Chaison too?

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All her stratagems collapsed. Venera returned the bullet to her pocket, stood, and continued down the steps.

When she reached the street she looked around until she spotted the apartment where at this moment Brydda and the rest of the Buridan trade delegation must be frantically searching for her. Leaden with defeat and anger, she let her feet carry her in that direction.

13

There were plenty of people waiting for Venera at the docks, but Garth was not among them—oh, she had accountants aplenty, maids and masters of protocol, porters and reporters and doctors, couriers and dignitaries from the nations of Spyre that had decided to conspicuously ally with Buridan. There was lots to do. But as she signed documents and ordered people about, Venera felt the old familiar pain radiating up from her jaw. Today's headache would be a killer.

She had to provide some explanation for why she'd returned early from the expedition, if only for the council representatives with their clipboards and frowns. "We were successful beyond expectations," she said, pinioning Brydda with a warning glare. "A customer has come forward who will satisfy all of our needs for quite some time. There was simply no need to continue with an expensive journey when we'd already achieved our goal."

This was far more information than most nations ever released about their customers, so the council would have to be content with it.

The return of the ruler of Buridan was a hectic affair, and it took until near dinnertime before Venera was able to escape to her apartment to contemplate her next move. There had been no messages from Sacrus, neither demands nor threats. They thought they had her in their pocket now, she supposed, so they could turn their attention to more important matters for a while. But those more important matters were her concern too.

She had a meal sent up and summoned the chief butler. "I do not wish to be disturbed for any reason," she told him. "I will be working here until very late." He bowed impassively, and she closed and locked the door.

In the course of renovations, some workmen had knocked a hole in one of her bedroom walls. She had chastised them roundly for it then discovered that there was an airspace behind it—an old chimney, long disused. "Work in some other room," she told the men. "I'll hire more reliable men to fix this." But she hadn't fixed it.

Ten minutes after locking the door, she was easing down a rope ladder that hung in the chimney. The huge portrait of Giles Thrace-Guiles that normally covered the hole had been set aside. At the bottom of the shaft, she pried back a pewter fireplace grate decorated with dolphins and naked women and dusted herself off in a former servant's bedroom that she'd recast as a storage closet.

It was easy to nip across the hall and into the wine cellar and slide aside the rack on its oiled track. Then she was in the rebels' bolthole and momentarily free of Buridan, Sacrus, and everything else—except, perhaps, the nagging of her new and still unfamiliar conscience.

The insane organ music from Buridan Tower's broken pipeworks had ceased. Not that it was silent as Venera stepped out of the filigreed elevator; the whole place still hummed to the rush and flap of wind. But at least you could ignore it now.

"Iron lady's here!" shouted one of the men waiting in the chamber. Venera frowned as she heard the term being relayed away down the halls. There were three guards in the elevator chamber and doubtless more lurking outside. She clasped her hands behind her back and strode for the archway, daring them to

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stop her. They did not.

The elevator room opened off the highest gallery of the tower's vast atrium. It was also the smallest, as the space widened as it fell. The effect from here was dizzying: she seemed suspended high above a cavern walled by railings. Venera stood there looking down while Bryce's followers silently surrounded her. Echoes of hammering and sawing drifted up from below.

After a while there was a chattering of footsteps, and then Bryce himself appeared. He was covered in plaster dust and his hair was disarrayed. "What?" he said. "Are they coming?"

"No," said Venera with a half smile. "At least not yet. Which is not to say that I won't need to give a tour at some point. But you're safe for now."

He crossed his arms, frowning. "Then why are you here?"

"Because this tower is mine," she said simply. "I wanted to remind you of the fact."

Waving away the makeshift honor guard, he strode over to lean on the railing beside her. "You've got a nerve," he said. "I seem to remember the last time we spoke, you were tied to a chair."

"Maybe next time it'll be your turn."

"You think you have us bottled up in here?"

"What would be the use in that?"

"Revenge. Besides, you're a dust-blood—a noble. You can't possibly be on our side."

She examined her nails. "I haven't got a side."

"That *is* the dust-blood side," said Bryce with a sneer. "There's those that care for the people; that's one side. The other side is anybody else."

"I care for my people," she said with a shrug, then, to needle him, "I care for my horses too."

He turned away, balling his hands into fists. "Where's our printing press?" he asked after a moment.

"On its way. But I have something more important to talk to you about. *Only* to you. A . . . job I need done."

He glanced back at her; behind the disdain, she could see he was intrigued. "Let's go somewhere better suited to talking," he said.

"More chairs, less rope?"

He winced. "Something like that."

"You can see Sacrus from here," she said. "It's a big sprawling estate, miles of it. If anybody is your enemy, I'd think it was them."

"Among others." The venue was the tower's library, a high space full of gothic arches and decaying draperies that hung like the forelocks of defeated men from the dust-rimmed window casements. Venera had prowled through it when she and Garth were alone here, and—who knew?—some of those dusty spines settling into the shelves might be priceless. She hadn't had time to find out, but Bryce's people had tidied up and there were even a few tomes open on the side tables next to several cracked leather armchairs.

Evening light shone hazily through the diamond-shaped windowpanes. She was reminded of another room, hundreds of miles away in the nation of Gehellen, and a gun battle. She had shot a woman there before Chaison's favorite staffer shattered the windows and they all jumped out.

Bryce settled himself into an ancient half-collapsed armchair that had long ago adhered to the floor like a barnacle. "Our goals are simple," he said. "We want to return to the old ways of government, from the days before Virga turned its back on advanced technologies."

"There was a reason why we did that," she said. "The outsiders—"

He waved a hand dismissively. "I know the stories, about this 'artificial nature' from beyond the skin of the world that threatens us. They're just a fairy tale to keep the people down."

Venera shook her head. "I knew an agent from outside. She worked for me,

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betrayed me. I killed her."

"Had her killed?"

"Killed her. With my sword." She allowed her mask to slip for a second, aiming an expression of pure fury at Bryce. "Just who do you think you're talking to?" she said in a low voice.

Bryce nodded his head. "Take it as read that I know you're not an ordinary courtier," he said. "I'm not going to believe any stories you tell without some proof, though. What I was trying to say was that our goal is to reintroduce computation machines into Virga and spread the doctrine of emergent democracy everywhere, so that people can overthrow all their institution-based governments, and emergent utopias can flourish again. We're prepared to kill anybody who gets in our way."

"I'm quite happy to help you with that," she said, "because I know you'll never be able to do it. If I thought you could do what you say . . ." She smiled. "But you might accomplish much, and on the way you can be of assistance to me."

"And what do you want?" he asked. "More power?"

"That would help. But let's get back to Sacrus. They—"

"They're *your* enemies," he said. "I'm not interested in helping you settle a vendetta."

"They're your enemies, too, and I have no vendetta to settle," she said. "In any case I'm not interested in making a frontal assault on them. I just want to visit for an evening."

Bryce stared at her for a second, then burst into laughter. "What are you proposing? That we hit Sacrus?"

"Yes."

He stopped laughing. He shook his head. "Might as well just march everybody straight into prison," he said. "Or a vivisectionist's operating room. Sacrus is the last place in Spyre any sane person would go."

Venera just looked at him for a while. Finally, she said, "Either you or one of your lieutenants works for them."

Bryce looked startled, then he scowled at her. "You've said ridiculous things before, but that one takes the prize. Why could you possibly—"

"Jacoby Sarto said something that got me thinking," she interrupted. "Sacrus's product is control, right? They sell it, like fine wine. They practice it as well; did you know that many, maybe most of the minor nations of Spyre are under their thumb? They make a hobby of pulling the strings of people, institutions—whole countries. I'm not so big a fool as to believe that a band of agitators like yours has escaped their attention. One of you works for them—for all I know, your whole organization is a project of theirs."

"What proof do you have?"

"My . . . lieutenant, Flance, whom you have yet to meet, has spent many nights walking the fields and plazas of Greater Spyre. He knows every passage, hedgerow, and hiding-place on that decrepit wheel. But he's not the only one. There's others who creep about at night, and he's followed them on occasion. Many times, such parties either started or ended up at Sacrus."

Bryce scoffed. "I've seen a nation that was controlled by them," Venera continued. "I know how they operate. Look, they have to train their people somehow. To them, Greater Spyre is a . . . a paddock, like the one where I keep my horses. It's their school. They send their people out to take over neighbors, foment unrest, create scandals, and conduct intrigues. I'd be very surprised if they didn't do that up in the city as well. So tell me I'm wrong. Tell me you're not working for them. And if not, look me in the eye and tell me that you're impervious to infiltration and manipulation."

He shrugged, but she could tell he was angry. "I'm not a fool," he said after a while. "Anything's possible. But you're still speculating."

"Well, I *was* speculating . . . but then I decided to do some research." She held

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up a sheaf of news clippings. "The news broadsheets of Lesser Spyre are highly partisan, but they don't disagree on facts. On the run-up to my party I spent a couple of afternoons reading all the news from the past couple of years. This gave me a chance to check on the places and properties that your group has targeted since you first appeared. Quite an impressive list, by the way—but every single one of these incidents has hurt a rival of Sacrus. Not one has touched them."

Bryce looked genuinely rattled for the first time in their brief acquaintance. Venera savored the moment. "I haven't been deliberately neglecting them," he said. "This must be a coincidence."

"Or manipulation. Are you so sure that you're the real leader of this rabble?"

Bryce began to look slightly green. "You don't think it's me."

Venera shook her head. "I'm not *totally* sure that you aren't the one working for them. But you're not—" she almost said *competent*, but turned it into—"ruthless enough. You don't have their style. But you don't make decisions without consulting your lieutenants, do you? And I don't know them. Chances are, you don't really know them either."

"You think I'm a puppet." He looked stricken. "That all along . . . So what—"

"I propose that we flush out their agent, if he exists."

He leaned forward and now there was no hesitation in his eyes. "How?"

She smiled. "Here, Bryce, is where your interests and mine begin to converge."

"I'll speak only to Moss," said the silhouetted figure. It had appeared without warning on the edge of the rooftop of Liris, startling the night guard nearly out of his wits. As he fumbled for his long-neglected rifle, the shape moved toward him with a lithe, half-remembered step. "This is urgent, man!"

"Citizen Fanning! I—uh, yes, let me make the call." He ran over to the speaking tube and hauled on the bell cord next to it. "She's back—wants to talk to the botanist," he said. Then he turned back to Venera. "How did you get up here?"

"Grappling hook, rope . . ." She shrugged. "Not hard. You should bear that in mind. Sacrus may still hold a grudge."

Shouts and footsteps echoed up through the open shaft of the central courtyard. "Tell them to be quiet!" she hissed. "They'll wake the whole building."

The watchman nodded and spoke into the tube again. Venera walked over to look down at the tree-choked courtyard far below. She could see lanterns hurrying to and fro down there. Finally, the iron-bound rooftop door creaked open and figures gestured to her to follow.

Moss was waiting for her in a gallery on the third floor. He was wrapped in a vast purple nightgown, and his hair was disheveled. His desperate, unfocused eyes glinted in the lantern light. "W-what is the m-meaning of this?"

"I'm sorry for rousting you out of bed so late at night," she said, eyeing the absurd gown. *We must look quite the couple,* she mused, considering her own efficient black and the sword and pistols at her belt. "I have something urgent to discuss with you."

He narrowed his eyes, then glanced at the watchman and soldiers who had escorted her down here. "L-l-leave us. I, I'll be all right." With a slight bow he turned and led her to his chamber.

"You could have taken over Margit's apartments, you know," said Venera as she glanced around the untidy, tiny chamber with its single bed, writing desk, and wardrobe. "It's your right. You are the botanist, after all."

Moss indicated for her to take the single wooden chair; he managed one of his mangled smiles as he plunked himself down on the bed. "Wh-who says I

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w-w-won't?" he said. "H-have to get the sm-smell out first."

Venera laughed, then winced at the shards of pain that shot through her jaw and skull. "Good for you," she said past gritted teeth. "I trust you've been well since I left?" He shrugged. "And Liris? Made any new sales?"

"W-what do you want?"

Tired and in pain as she was, Venera would have been more than happy to come to the point. But, "First of all, I have to ask you something," she said. "Do you know who I am?"

"Of c-course. You are V-Venera F-Fanning, from—"

"Oh, but I'm not—at least, not anymore." She grimaced at his annoyed expression. "I have a new name, Moss. Have you heard of Amandera Thrace-Guiles?"

His reaction was comically perfect. He stared, his eyes wide and his mouth open, for a good five seconds. Then he brayed his difficult laugh. "Odess was r-right! And h-here I thought he was m-mistaking every new face for s-somebody he knew." He laughed again.

Venera examined her nails coolly. "I'm glad I amuse you," she said. "But my own adventures hardly seem unique these days."

The grin left his face. "Wh-what do you mean?"

"Not that you have any obligation to tell me anything," she said, "but . . . surely you've seen that there are odd things afoot in Greater Spyre. Gangs of soldiers wandering in the dark . . . backroom alliances being made and broken. Something's afoot, don't you agree?"

He sat up straight. "Th-the fair is full of rumors. Some of the l-lesser nations have been losing people."

"Losing them? What do you mean?"

"When the f-first of our people v-vanished, we assumed M-Margit's supporters were leaving. I th-thought it was o-only us. But others have also lost people."

"How many of yours have left?" she asked seriously.

He held up one hand, fingers splayed. Five, then. For a miniature nation like Liris, that was too many.

"Do you have any idea where they went?" she asked.

Moss stood up, walked to the door, and listened at it for a moment. Then he turned and leaned on it. "Sacrus," he said flatly.

"It can't be a coincidence," she said. "I came here to talk to you about them. They . . . they have one of my people. Moss, you know what they're capable of. I have to get him back."

Her words had a powerful effect on Moss. He drew himself up to his full height, and for a moment his face lost its devastated expression; in that moment she glimpsed the determined, intelligent man who hid deep inside his ravaged psyche. Then his features collapsed back to their normal, woebegone state. He raised shaking hands and pressed his palms against his ears.

He said something, almost unintelligibly; after a moment Venera realized he'd said, "Are they toying with th-these recruits?"

"No," she countered hastily. "My man is a prisoner. The recruits or whatever they are . . . Moss, Sacrus has a reason to want an army of its own, possibly for the first time. They've finally discovered an ambition worth leaving their own doorstep." She said this with contempt, but in her imagination she saw the vast glowing bubble of nations that made up the principalities of Candesce. "They don't have the population to support what I think they're planning. But it wouldn't surprise me if they've been recruiting from the more secretive nations. Maybe they've always done it but never needed them all before. Now they're activating them."

Puzzlement spread slowly across Moss' face. "An a-army? What for?"

Venera took a deep breath, then said, "They believe they have the means to conquer the principalities of Candesce."

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He stared at her. "A-and do they?"

"Yes," she admitted, looking at her hands. "I brought it to them."

He said nothing; Venera's mind was already racing ahead. "Their force must be small by my standards," she said. "Maybe two thousand people. They'd be overwhelmed in any fair fight, but they don't intend to fight fair. If we could warn the principalities, they could blockade Spyre. But we'd need to get a ship out."

"Uh-unlikely," said Moss, with a sour expression. "One thing I d-do know about Sacrus is that they have been buying ships."

"What else can we do?" she asked tiredly. "Attack them ourselves?"

"Y-you didn't come to ask me to h-help you do that?"

She laughed humorlessly. "Buridan and Liris against Sacrus? That would be suicidal."

He nodded, but suddenly had a faraway look in his eye. "No," Venera continued. "I came to ask you to help me break into Sacrus's prison and extract my man. I have a plan that I think will work. Margit told me where they keep their 'acquisitions.' I believe they view people as objects, too, so he's likely to be in that place."

"Th-they guard their lands on the ground and a-above it," said Moss skeptically. But Venera smiled at that.

"I don't intend to come in by either route," she said. "But I need a squad of soldiers, at least a score of them. I have some of the forces I need, or I will," she half smiled. "But I need others I can trust. Will your people do it?"

Now it was his turn to smile. "S-strike a blow against Sacrus? Of c-course! But once the other nations who've l-lost people find out it was S-Sacrus stole them, y-you'll have more allies. A d-dozen at least."

Venera hadn't considered such a possibility. *Allies?* "I suppose we could count on one or two of the countries whose debts we forgave," she said slowly. "A couple of others might join us just out of devilment." She was thinking of Pamela Anseratte as she said this. Then she shook her head. "No—it's still not enough."

Moss gave his damaged laugh. "Y-you've f-forgotten the most important faction, Venera," he said. "And they have no l-love for Sacrus."

Venera rubbed her eyes. She was too tired and her head hurt too much to guess his meaning. "Who?" she asked irritably.

Moss opened the door and bowed slightly as he held it for her. "You c-came in s-secret. You should return before Candesce l-lights. We will assemble a force f-for you.

"And I will t-talk . . . to the preservationists."

14

"This is the window she was signaling from," said Bryce. He had his arms folded tightly to his chest and a muscle jumped in his jaw. Long tonguelike curls of wallpaper trembled over his shoulder in the constantly moving air. "I watched her send the whole message, clicking the little door of her lantern like she'd been doing light codes her whole life. She didn't even bother to encrypt the message."

Venera had gotten the story out of him in fits and starts, as memory and anger distracted him in turn. Cassia had been one of Bryce's first recruits. They had argued with their foreheads together in the dark bars that peppered Lesser Spyre's red-light district, and defaced buildings and thrown rocks at council parades. It was her urging that had led him down the path to terrorism, he admitted. "And all along, I was a project of hers—some kind of entrance exam to the academy of traitors in Sacrus!" He slammed his fist against the wall.

"Well." Venera shaded her eyes with her hand and peered through the freshly-installed glass. "In the end, you were the one who fooled her. And she's the

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one pent up in a locker downstairs."

He didn't look mollified. The false attack plan had been Venera's idea, after all; all Bryce had done was bring his lieutenants together to reveal the target of their next bombing, a Sacrus warehouse in Lesser Spyre. All three of the lieutenants had expressed enthusiasm, Cassia perhaps most of all. But as soon as the planning meeting broke up she had come down to this disused pantry midway up the side of Buridan Tower—and had started signaling.

Venera could see why she would have favored this room for more than its writhing, peeled wallpaper. From here you had a clear line of sight to the walls of Sacrus, which ran in uneven maze-like lines just past a hedge of trees and a preservationist siding. From the center of the vast estate, a single monolithic building rose hundreds of feet into the afternoon air. Venera imagined a tiny flicker of light appearing somewhere on the side of that edifice—the rapid *blink blink* of a message or instruction for Cassia. Bryce was having the place watched round the clock, but so far Sacrus had not responded to Cassia's warning.

"'Target is Coaver Street warehouse in two days,' she told them." Bryce shook his head in disgust. "'Urge evac of assets unless I can change target.'"

"You've done well," said Venera. She turned and sat hip-wise on the window casement. "Listen, I know you're upset—you feel unmanned. Fair enough, it's a humiliation. No more so than this, though." She held out a sheet of paper—a letter that had arrived for her this morning. She watched Bryce unfold it sullenly.

"'Vote for Proposition forty-four at Council tomorrow,'" he read. "What's that mean?"

She grimaced. "Proposition forty-four gives Sacrus control of the docks at Upper Spyre. Supposedly it's a demotion, since the docks aren't used much. Sacrus has modestly agreed to take that job and give up a plum post in the exchequer that they've held for decades. Nobody's likely to object."

Bryce managed a grim smile. "So they're ordering you around like a lackey now?"

"At least they respected you enough to manipulate you instead," she said. "And don't forget, Bryce: your people follow *you*. Cassia recognized the leader in you, otherwise she wouldn't have singled you out for her attention. She may have been manipulating you all this time—but she was also training you."

He grumbled, but she could see her words had pleased him. At that moment, though, they heard rapid footsteps in the hall outside. Gray-haired Pasternak, one of Bryce's remaining two lieutenants, stuck his head in the doorway and said, "They're here."

Venera spared a last glance out the window. From up here the airfall was an insubstantial mesh of fabric where ground should be. Rushing clouds spun by beneath that faint skein, which she knew was really a gridwork of I-beams and stout cable—the tough inner skeleton of Spyre, visible now that the skin was stripped away. A small jumble of gantries and cranes perched timidly at the edge of the ruined land. The official story was that Amandera Thrace-Guiles was trying to build a bridge across the airfall to rejoin Buridan Tower to the rest of Spyre.

She followed Bryce out of the room. The truth was that the bridge site was a ruse, a distraction to cover up the real link between Buridan and the rest of the world. In the few days that had passed since Venera's conversation with Moss, a great deal of activity had taken place in the pipeworks that Venera and Garth had used to reach Buridan Tower the first time. A camouflaged entrance had been built near the railway siding a few hundred yards back from the airfall's edge. A man, or even a large group of men, could jump off a slow-moving train and after a sprint under some trees be in

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a hidden tunnel that led all the way to the tower. True, there were still long sections where men had to walk separated by thirty feet or more lest the pipe give way . . . but that would be fixed.

As she and Bryce strode down the long ramp that coiled from the tower's top to its bottom, they passed numerous work sites, each comprising half a dozen or more men and women. It was much like the controlled chaos of her estate's renovation, except that these people weren't fixing the plaster. They were assembling weapons, inventorying armor and supplies, and fencing in the ballrooms. Bryce's entire organization was here, as well as gray-eyed soldiers from Liris and exotics from allies of that country. They had started arriving last night, after Bryce gave the all-clear that he'd found his traitor.

Bryce's people were still in shock. They watched the newcomers with mixed loathing and suspicion; but the trauma of Cassia's betrayal had been effective, and their loyalty to him still held. Venera knew they would need something to do—and soon—or their natural hatred of the status quo would assert itself. They were born agitators, cutthroats and bomb-builders, but that was why they would be useful.

A new group was just tromping up from the stairs to the pipeworks as Venera and Bryce reached the main hall. They wore oil-stained leathers and outlandish fur hats. Venera had seen these uniforms at a distance, usually wreathed in steam from some engine they were working on. These burly men were from the Preservation Society of Spyre, and they were sworn enemies of Sacrus.

For the moment they were acting more like overawed boys, though, staring around at the inside of Buridan Tower like they'd been transported into a storybook. In a sense, they had; the preservationists were indoctrinated in the history of the airfall, which remained the greatest threat to Spyre's structural integrity and which all now knew had been caused partly by Sacrus. Buridan Tower had probably been a symbol to them for centuries of defiance against decay and treachery. To stand inside it now was clearly a shock.

Good. She could use that fact.

"Gentlemen." She curtsied to the group. "I am Amandera Thrace-Guiles. If you'll follow me, I'll show you where you can freshen up, and then we can get started."

They murmured amongst themselves as they walked behind her. Venera exchanged a glance with Bryce, who seemed amused at her formality.

The preservationists headed off to the washrooms and Venera and Bryce turned the other way, entering the tower's now familiar library. Venera had ordered some of the emptied armor of the tower's long-ago attackers mounted here. The holed and burned crests of Sacrus and its allies were quite visible on breastplate and shoulder. As a pointed message, Venera'd had the suits posed like sentries around the long map table in the middle of the room. One even held a lantern.

Bryce's lieutenants were already at the table, pointing to things and talking in low tones with the commander of the Liris detachment. As the preservationists trouped back in, the other generals and colonels entered from a door opposite. Moss had exceeded Venera's wildest expectations: at the head of this group were generals from Carasthant and Scoman, old allies of Liris in its war with Vatoris—and they had brought friends of their own. Most prominent was the towering, frizzy-haired Corinne, Princess of Fin. Normally, Venera didn't like women who were social equals—in Hale they always represented a threat—but she'd taken an instant liking to Corinne.

Venera nodded around at them all. "Welcome," she said. "This is an extraordinary meeting. Circumstances are dire. I'm sure you all know by now that Sacrus has recruited an army, plundering its neighbors of manpower in the

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process. So far the council at Lesser Spyre is acting like it never happened. I think they're in a tailspin. Does anyone here believe that the council should be the ones to deal with the situation?"

There were grins round the table. One of the preservationists held up a hand. He would have been handsome were it not for the beard—Venera hated beards—that obscured the lower half of his face. "You're on the council," he said. "Can't you bring a motion for them to act?"

"I can, but the next morning I'll receive the head of my man Flance in the mail," she said. "Sacrus has him. So I'm highly motivated, though not in the ways that Sacrus probably expect. Still . . . I won't act through the council."

"Sacrus blocked one of our main lines," said the preservationist. "All of Spyre is in danger unless we can get a counterbalance running through their land. Beyond that, we don't give a damn who they conquer."

It was Venera's turn to nod. The preservationists were dedicated to keeping the giant wheel together. Most of their decisions were therefore pragmatic and dealt with engineering issues.

"Are you saying they could buy your loyalty by just giving you a siding?" she asked.

"They could," said the bearded man. There were protests up and down the table, but Venera smiled.

"I applaud your honesty," she said. "Your problem is that you'd need to give them a reason before they did that. They've never had any use for you and you've never been a threat to them. So you've come here to buy that leverage?"

He shrugged. "Or see them destroyed. It's all the same to us."

Bryce leaned out to look at the man. "And the fact that they used poison gas to kill twenty-five of your workers a generation ago . . ?"

". . . Gives us a certain bias in the *destroy* direction. Who are you?" added the bearded man, who had been briefed on the identities of the other players.

With obvious distaste, Bryce said what they'd decided he would say: "Bryce. Chief of Intelligence for Buridan," and he nodded at Venera.

"You've a *spy network?*" The preservationist grinned at her ironically.

"I do, Mister . . . ?"

"Thinblood." It could have been a name or a title.

"I do, Mister Thinblood—and *you've* got a secret warehouse full of artillery at junction sixteen," she said with a return smile. Thinblood turned red; out of the corner of her eye Venera saw Princess Corinne stifle a laugh.

"We are all to be taken seriously," Venera went on. "As is Sacrus. Let's return to discussing them."

"Hang on," said Thinblood. "What are we discussing? War?"

She shook her head. "Not yet. But clearly, Sacrus needs its wings clipped."

The lean, cadaverous general from Carasthant made a violent shushing gesture that made everyone turn to stare at him. "What can little guppies like us do?" he said in a buzzing voice that seemed to emanate from his bobbing Adam's apple. "Begging your pardon, Madam Buridan, Mister Preservationist sir. Do you propose we take down a shark by worrying at its gills?"

His compatriot from Scoman waggled his head in agreement. The thousand and one tiny clocks built into his armor all clicked ahead a second. "Sacrus is bounded by high walls and barbed wire," he said over the quiet snicking of his clothing, "and they have sniper towers and machine-gun positions. Even if we fought our way in, what would we do? Piss on their lawn?"

That was an expression Venera had never heard before.

Venera had thought long and hard about what to say when this question came up. These men and women were gathered here because their homes had all been injured or insulted by Sacrus—but were they here merely to vent their

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indignation? Would they back down in the face of actual action?

She didn't want to tell them that she knew what Sacrus was up to. The key to Candesce was a prize worth betraying old friends for. If they knew Sacrus had it, half these people would defect to Sacrus's side immediately, and the other half would proceed to plan how to get it themselves. It might turn into a night of long knives inside Buridan Tower.

"Sacrus's primary assets lie inside the Gray Infirmary," she said. "Whatever it is that they manufacture and sell, that is its origin. At the very least, we need to know what we're up against, what they're planning to do. I propose that we invade the Gray Infirmary."

There was a momentary, stunned silence from the new arrivals. Princess Corinne's broad sunburnt face was squinched up in a failed attempt to hide a smile. Then Thinblood, the Carasthant general, and two of the minor house representatives all started talking at once.

"Impossible!" she heard, and "suicide!" through the general babble. Venera let it run on for a minute or so, then held up her hand.

"Consider the benefits if it could be done," she said. "We could rescue my man Flance, assuming he's there. We could find out what Sacrus trades in—though I think we all know—but in any case find out what its tools and devices are. We might be able to seize their records. Certainly we can find out what it is they're doing.

"If we want, we can blow up the tower.

"And it *can* be done," she said. "I admit I was pretty hopeless myself until last night. We'd talked through all sorts of plans, from sneaking over the walls to shimmying down ropes from Lesser Spyre. All our scenarios ended up with us being machine-gunned, either on the way in or on the way out. Then I had a long talk with Princess Corinne, here."

Corinne nodded violently; her hair followed her head's motion a fraction of a second late. "We can get into the Gray Infirmary," she brayed. "And out again safely."

There was another chorus of protests and again Venera held up her hand. "I could tell you," she said, "but it might be more convincing to *show* you. Come." And she headed for the doors.

The roar from the airfall was more visceral than audible here in the lowest of Buridan's pipes. Bryce's people had lowered ladders down here when they came to cut away the maddening random organ that had been accidentally created in Buridan's destruction. The corroded metal surface gleamed wetly and as Venera stepped off the ladder, she slipped and almost fell. She stared up at the ring of faces twenty feet above her.

"Well, come on," she said. "If I'm brave enough to come down here, you can be too."

Thinblood ignored the ladder and vaulted down, landing beside her with a smug thump. Instantly, the surface under their feet began swaying, and little flakes of rust showered down. "The ladder's here to save the pipe, not your feet," Venera said loudly. Thinblood looked abashed; the others clambered down the ladder meekly.

The ladder descended the vertical part of the pipe and they now stood where it bent into a horizontal direction. This tunnel was ten feet wide and who knew what it might originally have carried? Horse manure, Venera suspected. Whatever the case, it now ended twenty feet away. Late afternoon sunlight hurried shadows across the jagged circle of torn metal. It was from there that the roar originated.

"Come." Without hesitation Venera walked to within five feet of the opening, then went down on one knee. She pointed. "There! Sacrus!"

They could barely have heard her over the roar of the thin air; it didn't

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matter. It was clear what she was pointing at.

The pipe they stood in thrust forty or fifty feet into the airstream below the curve of Spyre's hull. Luckily, this opening faced away from the headwind, though suction pulled at Venera relentlessly and the air was so thin she was starting to pant already. The pipe hung low enough to provide a vantage point from which a long stretch of Spyre's hull was visible—miles of it, in fact. Way out there, near the little world's upside-down horizon, a cluster of pipes much like this one—but intact—jutted into the airflow. Nestled among them was a glassed-in machine-gun blister, similar to the one Venera had first visited underneath Garth Diamandis's hovel.

"That's the underside of the Gray Infirmary," she yelled at the motley collection of generals and revolutionaries crowding at her shoulder. Someone cupped hand to ear and looked quizzical. "Infirmary! In! *Firm!*" She jabbed her finger at the distant pipes. The quizzical person smiled and nodded.

Venera backed up cautiously, and the others scuttled ahead of her. At the pipe's bend, where breathing was a bit easier and the noise and vibration not so mind-numbing, she braced her rump against the wall and her feet in the mulch of rust lining the bottom of the pipe. "We brought down telescopes and checked out that machine-gun post. It's abandoned, like most of the hull positions. The entrance is probably bricked up, most likely forgotten. It's been hundreds of years since anybody tried to assault Spyre from the outside."

She could barely make out the buzzing words of Carasthant's general. "You propose to get in through that? How? By jumping off the world and grabbing the pipes as they pass?"

Venera nodded. When they all stared back uncomprehending, she sighed and turned to Princess Corinne. "Show them," she said.

Corinne was carrying a bulky backpack. She wrestled this off and plunked it down in the rust. "This," she said with a dramatic flourish, "is how we will get to Sacrus.

"It is called a *parachute."*

She had to focus on her jaw. Venera's face was buried in the voluminous shoulder of her leather coat; her hands clutched the rope that twisted and shuddered in her grip. In the chattering roar of a four-hundred mile per hour wind there was no room for distractions, or even thought.

Her teeth were clenched around a mouthpiece of Fin design. A rubber hose led from this to a metal bottle that, Corinne had explained, held a large quantity of squashed air. It was that ingredient of the air the *Rook's* engineers had called *oxygen;* Venera's first breath of it had made her giddy.

Every now and then the wind flipped her over or dragged her head to the side and Venera saw where she was: wrapped in leathers, goggled and masked, and hanging from a thin rope inches below the underside of Spyre.

All she had to do was keep her body arrow-straight and keep that mouthpiece in. Venera was tied to the line, which was being let out quite rapidly from the edge of the airfall. Ten soldiers had already gone this way before her, so it must be possible.

It was night, but distant cities and even more distant suns cast enough light to silver the misty clouds that approached Spyre like curious fish. She saw how the clouds would nuzzle Spyre cautiously, only to be rebuffed by its whirling rotation. They recoiled, formed cautious spirals and danced around the great cylinder, as if trying to find a way in. Dark speckles—flocks of piranhawks and sharks—browsed among them, and there in great black formations were the barbedwire and blockhouses of the sentries.

To be among the clouds with nothing above or below seemed perfectly nor-

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mal to Venera. If she fell, she only had to open her parachute and she'd come to a stop long before hitting the barbed wire. It wasn't the prospect of falling that made her heart pound—it was the savage headwind that was trying to snatch her breath away.

The rope shuddered, and she grabbed it spasmodically. Then she felt a hand touch her ankle.

The soldiers hauled her through a curtain of speed ivy and into a narrow gun emplacement. This one was dry and empty, its tidiness somehow in keeping with Sacrus's fastidious attention to detail. Bryce was already here, and he unceremoniously yanked the air line from Venera's mouth—or tried; she bit down on it tenaciously for a second, glaring at him, before relenting and opening her mouth. He shot her a look of annoyance and tied it and her unopened parachute to the line. This he let out through the speed ivy, to be reeled back to Buridan for its next user.

Princess Corinne's idea had sounded insane, but she merely shrugged, saying, "We do this sort of thing all the time." Of course, she was from Fin, which explained much. That pocket nation inhabited one of Spyre's gigantic ailerons, a wing hundreds of feet in length that jutted straight down into the airstream. Originally colonized by escaped criminals, Fin had grown over the centuries from a cold and dark sub-basement complex into a bright and independent—if strange—realm. The Fins didn't really consider themselves citizens of Spyre at all. They were creatures of the air.

Over the years they had installed hundreds of windows in the giant metal vane, as well as hatches and winches. They were suspected of being smugglers, and Corinne had proudly confirmed that. "We alone are able to slip in and out of Spyre at will," she'd told Venera. And, as their population expanded, they had colonized five of the other twelve fins by the same means they were using to break into Sacrus.

To reach Sacrus, one of Corinne's men had donned a parachute and taken hold of a rope that had a big three-barbed hook on its end. He had stepped into the howling airfall and was snatched down and away like a fleck of dust.

Venera had been watching from the tower and saw his parachute balloon open a second later. Instantly, he stopped falling away from Spyre and began curving back toward the hull. *Down* only operated as long as you were part of the spinning structure, after all; freed of the high speed imparted by Spyre's rotation, he'd come to a stop in the air. He could have hovered there, scant feet from the hull, for hours. The only problem was the rope he held, which was still connected to Buridan.

The big wooden spool that was unreeling it was starting to smoke. Any second now it would reach its end, and the snap would probably take his hands off. Yet he calmly stood there in the dark air, waiting for Sacrus to shoot past.

As the pipes and machine-gun nest leaped toward him he lifted the hook and, with anticlimactic ease, tossed it ahead of the rushing metal. The hook caught; the rope whipped up and into the envelope of speeding air surrounding the hull; and Corinne's man saluted before disappearing over Spyre's horizon. They'd recovered him when he came around again.

Now, brilliant light etched the cramped gun emplacement with the caustic sharpness of a black-and-white photograph. One of the men was employing a welding torch on the hatch at the top of the steps. "Sealed ages ago, like we thought," shouted Bryce, jabbing a thumb at the ceiling. "Judging from the pipes, we're under the sewage stacks. There's probably toilets above us."

"Perfect." They needed a staging ground from which to assault the tower. "Do you think they'll hear us?"

Bryce grimaced. "Well, there could be

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fifty guys sitting around up there taking bets on how long it'll take us to burn the hatch open. We'll find out soon enough."

Suddenly, the ceiling blew out around the welder. He retreated in a shower of sparks, cursing, and a new wind filled the little space. Before anybody else could move, Thinblood leaped over to the hole and jammed some sort of contraption up it. He folded, pulled—and the wind stopped. The hole the welder had made was now blocked by something.

"Patch hatch," said Thinblood, wiping dust off his face. "We'd better go up. They might have heard the pop or felt the pressure drop."

Without waiting, he pressed against his temporary hatch, which gave way with a rubbery slapping sound. Thinblood pushed his way up and out of sight. Bryce was right behind him.

Both were standing with their guns drawn when Venera fought her way past the suction to sprawl on a filthy floor. She stood up, brushing herself off, and looked around. "It is indeed a men's room."

Or was it? In the weak light of Thinblood's lantern, she could see that the chamber was lined in tiles that had once been white but which had long since taken on the color of rust and dirt. Long streaks ran down the wall to dark pools on the floor. Venera expected to see the usual washroom fixtures along the walls, but other than a metal sink there was nothing. She had an uneasy feeling that she knew what sort of room this was, but it didn't come to her until Thinblood said, "Operating theater. Disused."

Bryce was prying at a metal chute mounted in one wall. It creaked open, and he stared down into darkness for a second. "A convenient method of disposal for body parts or even whole people," he said. "I'm thinking more like an autopsy room."

"Vivisectionist's lounge?" Thinblood was getting into the game.

"Shut up," said Venera. She'd gone over to the room's one door and was listening at it. "It seems quiet."

"Well it *is* the middle of the night," the preservationist commented. More members of their team were meanwhile popping up out of the floor like jack-in-the-boxes. *Minus the wind-up music*, Venera mused.

Soon there were twenty of them crowded together in the ominous little room. Venera cracked the door and peered out into a larger, dark space full of pipes, boilers, and metal tanks. This was the maintenance level for the tower, it seemed. That was logical.

"Is everyone clear on what we're doing?" she asked.

Thinblood shook his head. "Not even remotely."

"We are after my man Flance," she said, "as well as information about what Sacrus is up to. If we have to fight, we cause enough mayhem to make Sacrus rethink its strategy. Hence the charges." She nodded at the heavy canvas bag one of the Liris soldiers was toting. "Our first order of business is to secure this level, then set some of those charges. Let's do it."

She led the soldiers of half a dozen nations as they stepped out of their bridgehead and into the dark of enemy territory.

15

Everything in the Gray Infirmary seemed designed to promote a feeling of paranoia. The corridors were hung with huge black felt drapes that swayed and twitched slightly in the moving air, giving the constant impression that there was someone hiding behind them. The halls were lit by lanterns fixed on metal posts; you could swivel the post and aim the light here and there, but there was no way to illuminate your entire surroundings at any point. The floors were muffled under deep crimson carpet. You could sneak up on anybody here.

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There were no signs, doors were hidden behind the drapery, and all the corridors looked alike.

It reminded Venera unpleasantly of the palace at Hale. Her father's own madness had been deepening in the days before she succeeded in escaping to a life with Chaison. The king had all the paintings in the palace covered, the mirrors likewise. He took to walking the hallways at night, a sword in his hand, convinced as he was that conspirators waited around every corner. These nocturnal strolls were great for the actual conspirators, who knew exactly where he was and so could avoid him easily. Those conspirators—almost entirely comprising members of his own family—would bring him down one day soon. Venera had not received any letters bragging of his downfall while she lived in Rush; but there could well be one waiting when or if she ever returned to Slipstream.

That was the madness of one man. Sacrus, though, had done more than generalize such paranoia: it had institutionalized it. The Gray Infirmary was a monument to suspicion and a testament to the idea that distrust was to be encouraged. "Don't pull on the curtains to look for doors," Venera cautioned the men as they rounded a corner and lost sight of the stairs to the basement. "They may be rigged to an alarm."

Thinblood scoffed. "Why do something like that?"

"So only the people who know where the doors are can find them," she said. "People trying to escape—or interlopers like us—set off the bells. Luckily, there's another way to find them." She pointed at the carpet. "Look for worn patches. They signify higher traffic."

The corridor they were in seemed to circle some large inner area. Opposite the basement stairs they found the broad steps of an exit, and next to it stairs going up. It wasn't until they had nearly circled back to the basement stairs that they found a door letting into the interior. Next to a patch of slightly worn carpet, Venera eased the curtains to the side and laid her hand on a cold iron door with a simple latch. She eased the door open a crack—it made no sound—and peered in.

The room was as big as an auditorium, but there was no stage. Instead, dozens of long glass tanks stood on tables under small electric lights. The lights flickered slightly, their power no doubt influenced by the jamming signal that emanated from Candesce.

Each tank was filled with water, and lying prone in them were men—handcuffed, blindfolded, and with their noses and mouths just poking out of the water. Next to each tank was a stool, and perched on several of these were women who appeared to be reading books.

"What is it?" Thinblood was asking. Venera waved at him impatiently and tried to get a better sense of what was going on here. After a moment she realized that the women's lips were moving. They were reading to the men in the tanks.

". . . I am the angel that fills your sky. Can you see me? I come to you naked, my breasts are full and straining for your touch."

Bryce put a hand on her shoulder and his head above hers. "What are they doing?"

"They seem to be reading pornography," she whispered, shaking her head.

". . . Touch me, oh touch me exalted one. I need you. You are my only hope.

"Yet who am I, this trembling bird in your hand. I am more than one woman, I am a multitude, all dependent on you . . . I am Falcon Formation, and I need you in all ways that a man can be needed . . ."

Venera fell back, landing on her elbows on the deep carpet. "Shut it!" Bryce raised an eyebrow at her reaction, but eased the door closed. He twitched the curtain back into place.

"What was that all about?" asked Thin-

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blood.

Venera got to her feet. "I just found out who one of Sacrus's clients is," she said. She felt nauseated.

"Can we seal off this door?" she asked. "Prevent anyone getting out and coming at us from behind?"

Bryce frowned. "That presents its own dangers. We could as easily trap ourselves."

She shrugged. "But we have *grenades,* and we're not afraid to use them." She squinted at him. "Are we?"

Thinblood laughed. "Would a welding torch applied to the hinges do the trick? We'll have to leave a tiny team behind to do that."

"Two men, then."

They went back to the upward-leading stairs. The second level presented a corridor identical to the one below. The same muffled silence hung over everything here. "Ah," said Venera, "such delicate decorative instincts they have."

Thinblood was pacing along bent over, hands behind his back. He stared at the floor mumbling "hmmm, hmmm." After a few seconds he pointed. "Door here."

Venera twitched back the curtain to reveal an iron-bound door with a barred window. She had to stand on her tiptoes to see through it to the long corridor full of similar doors beyond. "This looks like a cell block." She rattled the door handle. "Locked."

"Hello?" The voice had come from the other side of the door. Venera motioned for the others to get out of sight, then summoned a laconic, sugary voice and said, "Is this where I can find my little captain?" She giggled.

"Wha—?" Two eyes appeared at the door, blinking in surprise at her. Just in time, Venera had yanked off her black jacket and shirt, revealing the strategic strappery that maximized her figure. "Who the hell are you?" said the man on the other side of the door.

"I'm your present," whispered Venera. "That is, if you're Captain Sendriks. . . . I'd like it if you were," she added petulantly. "I'm tired of tromping around these stupid corridors in nothing but my assets. I could catch a cold."

A moment later the latch clicked and seconds after that Venera was inside with a pistol under the chin of the surprised guard. Her men flowed around her like water filling a pipe; as she gestured for her new prisoner to kneel Thinblood said, "It's clear on this end, but there's another man around the corner yonder."

"Level a pistol at him and he'll fall into line." She watched one of the soldiers from Liris tying up her man, then said, "It *is* cold in here. Bryce, where's my jacket?"

"Haven't seen it," he said innocently. Venera glared at him, then went to collect it herself.

The new corridor held a faint undertone of coughing and quizzical voices, which came from behind the other doors. This was indeed a cell block. Venera raced from door to door. "Up! Yes, you! Who are you? How long have you been here?"

There were men and women here. There were children as well. They wore a wide mix of clothing, some familiar from her days in Spyre, some foreign, perhaps of the principalities. Their accents, when they answered her hesitantly, were similarly diverse. All seemed well fed, but they were haggard with fear and lack of sleep.

Garth Diamandis was not among them.

Venera didn't hide her disappointment. "Tell me where the rest of the prisoners are or I'll blow your head off," she told the guard. She had him on his knees with his face pressed against the wall, her pistol at the back of his head. "Bear in mind," she added, "that we'll find them ourselves if we have to, it'll just take longer. What do you say?"

He proceeded to give a detailed account of the layout of the tower, including where the night watch was sta-

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tioned and when their rounds were. So far Venera hadn't seen any sign of watchmen; for a nation gearing up for war, Sacrus seemed extremely lax. She said so and her prisoner laughed, a tad hysterically.

"Nobody's ever gotten in or out of here," he mumbled against the plaster. "Who would break in? And from where?" He tried unsuccessfully to shake his head. "You people are insane."

"A common enough trait in Spyre," she sniffed. "Your mistake, then."

"You don't understand," he croaked. "But you will."

She had already noted that he wore armor that was light and utilitarian, and his holstered weapons had been similarly simple. This functionalism, which contrasted dramatically with the outlandish costumes of most of her people, made her more uneasy about Sacrus's abilities than anything he'd said.

They spent some time trying to get more out of him and his companion. Neither they nor the prisoners they spoke to knew what Sacrus's plan was—only that a general mobilization was underway. The prisoners themselves were from all over the principalities; some had recently gone missing within Spyre itself.

"They're enough evidence to haul Sacrus before the high court on crimes against the polity," crowed Bryce. "If we can just get some of these people out of here."

Venera shook her head. "They may be enough to get the rest of Spyre up in arms. But until we can come up with a decent plan for getting them out alive, they're safer where they are. Let them loose now and they'll give us away, and probably try to run the gauntlet of machine guns and barbed wire on their way to the outer walls. At least let's find them some weapons and a direction to run in."

Bryce and Thinblood exchanged glances. Then Bryce quirked his irritating smile. "I have an idea," he said. "Let's strike a compromise. . . ."

There were plenty of cells in the block, but Garth was in none of them. While Venera searched for him, Thinblood took the bulk of the team to look for the night watch. Nearly fifteen minutes had passed before he reappeared.

Thinblood was jubilant. "Both floors are secure," he said. "We left the watchmen in a closet we found. And my welder has sealed off the main doors and a side entrance. He's a model of efficiency, that one."

Bryce put a hand on Venera's arm. "Your man doesn't seem to be here. We have to look to our other objectives."

She shrugged him off, gritting her teeth so as not to snap some withering retort. "All right, then," she said. "There's more to this tower upstairs. Let's find out what Sacrus is up to."

The next floor was different. Here the velvet-covered walls and darkness gave way to marble and bright, annoyingly uneven electric light. Venera heard the sound of voices and chatter of a mechanical typewriter coming from an open door about thirty feet to the left. Crouching under the lee of the steps with the others, she scowled and said, "The time for subtlety may be past."

"Wait." Thinblood pointed the other way. Venera craned her neck and saw the heavy vault-style door even as Thinblood said, "Sacrus is reputed to keep their most secret weapons in this place. Do you think . . . ?"

"I think I saw some of those weapons being made downstairs," she said, thinking of the fish-tank room. "But you're right. It's just too tempting." The door was surrounded by big signs saying VALID PERSONNEL ONLY, and two men with rifles slouched in front of it. "How do we get past them?"

One of Corinne's men cleared his throat quietly. He drew something from his backpack and after a moment his companions did likewise. They strung the small compound bows with quick

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economical movements. Seeing this, Venera and the other leaders climbed back down and out of the way.

"Count of three," said the man at the top. "You take the one on the right, we'll do the one on the left. One, two—"

All four of Corinne's soldiers jumped out of the stairwell and rolled into crouches. Their shoulder muscles creased in unison as they drew back, and Venera heard an intake of breath and "What the—" from off to the right, and then they let loose.

There was a grunt, a thud, then another. The archers whirled around, looking for another target.

The sound of typing continued.

"Take out that office," Venera instructed the archers as she stepped into the hallway. "We'll go for the vault."

The heavy door had a thick glass window in it. Venera shaded her eyes with her hands and stared through for a few seconds. She whistled. "I think we've found the mother lode."

The chamber beyond was large—it must take up most of this level. There were no windows, and its distant walls were draped in black like the corridors downstairs. Its brick floor was crisscrossed by red carpets; in the squares they defined, pedestals large and small stood under cones of light. Each pedestal supported some device—brass canisters here, a fluted rifle-like weapon there. Large jars full of thick brown fluid gleamed near things like bushes made of knives. There was nothing in there that looked innocuous, nothing Venera would have willingly wanted to touch. But all were on display as if they were treasures.

She supposed they were that; this might be the vault that held Sacrus's dearest assets.

The view was obscured suddenly. Venera found herself staring into the cold gray eyes of a soldier, who mouthed something she couldn't hear through the glass.

Deception wasn't going to work this time. "We've been seen," she said even as a loud alarm bell suddenly filled the corridor with jangling echoes.

"Can we blow this?" Thinblood was asking one of his men. The soldier shook his head.

"Not without taking time to figure out the vulnerable points . . . maybe doing some drilling . . ."

Thinblood looked at Venera, who shrugged. "It's going to be a firefight from now on," she said. "Better get downstairs and free those prisoners. Then we can—" Something bright and sudden flashed in her peripheral vision and there was a loud *clang!*

She stared in dumb surprise at the metal bars that now blocked the way to the stairwell. "Blow them!" she shouted, pulling out her preservationist-built machine-pistol. "This is no time for subtlety!"

At that moment there was an eruption of noise from the far end of the corridor. Venera dove to the floor as impacting bullets sprayed marble dust and plaster at her. The others either flattened as well or staggered back against the wall. Blood spattered over the threaded stonework.

Now a smoke grenade was tumbling toward her, each end-over-end bounce sending a gout of black into the air. It stopped just outside the bars then disappeared in a growing pyramid of darkness. Past that Venera heard shouted orders, gunshots.

"You will lie facedown on the floor and put your hands behind your necks! Anyone we do not find in that position will be shot! You have five seconds and then we will shoot everything that sticks up more than a foot off the floor."

All she could hear after that was machine-gun fire.

The commandant held the mimeographed picture of Venera next to her head and compared the two. "You look older in real life," he said in apparent dis-

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appointment. She glared at him but said nothing.

"Really," he continued in apparent amazement, "what did you think you were going to achieve? Invading *Sacrus?* We've forgotten more tricks of incursion and sabotage than you people ever knew."

Twelve of Venera's people knelt around her on the floor of a storage room that opened off the third-floor corridor. Mops and brooms loomed over her; a single flickering bulb illuminated the three men with machine guns who were standing over the prisoners. Two more soldiers had been tying their hands behind their backs, but the process had stalled out briefly as they ran out of rope. The commandant, who had at first seemed flustered and shocked, had soon recovered his poise and now appeared to be genuinely enjoying himself.

"You did a good job of sealing off the front doors, but my superiors were able to slip this through the crack." He waggled the mimeograph at Venera. He was a beefy man with an oddly asymmetrical face; one of his eyes was markedly higher than the other, and his upper lip lifted on the left giving him a permanent look of incredulity. "They also slipped in some instructions on how we're to proceed while they cut through your welding job. It seems we had a . . ." He flipped the sheet over to read the back. ". . . a certain Garth Diamandis in our custody, as guarantor of your good behavior. Our arrangement was very clear. Should you fail to obey our orders, we were to kill this Diamandis. I'd say that your little incursion tonight constitutes disobedience, wouldn't you?"

Venera drew back her lips in a snarl. "Someday they're going to name a disease after you."

The commandant sighed. "I just wanted you to know that I've issued the order. He's being terminated, oh, even as we speak. And—" he laughed heartily, "I had an inspiration! The manner of his passing is quite hideous, you'll be impressed when you see—"

A soldier clattered to a stop at the door to the office. "The lower floors are secure, sir," he said. "They had tied up the night watch and the guards in the prison. In addition, we found ten of these in the basement." He handed the commandant one of the charges Venera's people had set.

Venera exchanged a glance with Bryce, whose hands were still untied.

"Well, look at this." The commandant knelt in front of Venera. "A little clockwork bomb. Why, it's so intricately made, I can only think of one place it might have come from." He arched an eyebrow at the knot of prisoners. "Are any of you from Scoman, by any chance?" He didn't wait for an answer, but turned the mechanism over under Venera's nose. "How does it work? Is it a timer?"

She said nothing; he shrugged and said, "I think I can figure it out. You turn this dial to give yourself . . . what? Ten minutes? If you don't reset it before it winds down to zero it explodes."

A muffled report sounded from somewhere in the building. A gunshot? The commandant glanced at his men; one turned and left the room. "I suppose one or two of your compatriots might still be loose," he admitted. "But we'll round them up soon enough."

He was just opening his mouth to add something else when the lights went out. The building rocked to a distant blast.

Instant pandemonium—somebody stepped on Venera and crumpled her to the floor while some sort of struggle erupted just to her right; one of the machine guns went off, apparently into the ceiling, lighting the space with a momentary red flicker. All she saw was people rearing up, falling down, tumbling like scattered chessmen. She strained but couldn't get free of the ropes that bound her hands behind her.

Another explosion, then another—

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how many of those bombs had they said they'd found? She was sure they'd planted at least twelve.

Now somebody fell on her in a horrifyingly limp tangle and she screamed, but nobody could hear her over the shouts, screams, and shots.

More machine-gun fire, terrifyingly close but apparently directed out the door. Venera wormed out from under the wet body and found a corner to huddle in, hands jammed into the spot where walls and floor met. She cursed the dark and chaos and expected to receive a bullet in the head any second.

Silence and heavy breathing. Distant shouts. Somebody lit a match.

Bryce and Thinblood stood back to back. Each held a machine gun. Another gun lay under the body of the commandant, whose lopsided face was frozen in an expression of genuine surprise. The room was awash with men who were holding one another by the throat, or feet, or wrists, all atop the tiled bodies of the soldiers who were still tied up. Dark blood was spattered up the wall and over everybody. Venera looked down at herself and saw that her own clothes were glistening with the stuff.

"Get them untied!" Somebody flipped a knife into his hand and began bending and slashing at the ropes. When he reached Venera, she saw that it was one of the archers. Venera leaned forward knocking her forehead against the floor as he roughly grabbed her arms and cut.

"The prisoners are loose!" Bryce hauled her to her feet just as the match went out. "Somebody find a bloody lantern! We've got to get out of here!" They burst into the corridor just as the lights resumed a dim glow. There were bodies all over the place, bullet holes in the walls, and she heard shots and shouts coming from the stairwell.

"Good idea to leave those men in the cells," she said to Bryce. "A command decision."

He grinned. They had given two men some spare weapons and grenades and, out of sight of the tied-up guards, put them in a cell with a broken lock. They were to free the prisoners and arm them if the rest of the team didn't return in good time.

The soldiers recovered their guns and armor from a pile outside the storage room and one by one loped toward the T-intersection next to the stairwell. A firefight had broken out down there. Venera had her pistol in her hand but ended up in the rear, down on all fours as bullets sprayed overhead.

For a few minutes there was shouting and shooting. When it became clear that the men in the stairwell were of Sacrus, somebody threw a grenade at them, but more shots were coming from the side—the top right arm of the T from Venera's perspective. That was the direction the commandant's men had originally come from. The stairwell was at the very top of the T, the storage room behind her.

Now it was chaos and shooting again. Venera crawled to the left, to the spot where the metal cage had descended earlier. It was gone. She raised her head slightly and saw, through smoke and dim light, that the great metal door to the treasure room was open.

Bryce and the others had made it into the now cleared stairwell, but Venera had been too slow. Soldiers of Sacrus emerged from clouds of gunsmoke, faceless in the faint light. Venera scrambled to her feet, slipped on blood, and half fell through the doorway into the treasure room. Her feet found purchase on the carpet, and she pressed her whole body against the cold door. It slowly creaked shut, ringing from bullet impacts at the last instant.

She spun the wheel in the center of the portal and turned around to lean on it. A sound hangover echoed through her head for a few seconds, or was she still hearing the battle, but muffled by iron and stone?

Stepping forward she lifted her arms, saw blood all over them. Something

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caught her foot and she stumbled. Looking down she saw that it was another body—a soldier of Sacrus, maybe the very one with whom she'd locked eyes through the little glass window in the door. He lay on his back, arms flung about, and blood pooling behind his head.

His abdomen had been cut wide open and his entrails trailed along the floor.

A new wash of fear came over Venera. She backed against the door and brought up her pistol to check it. Wouldn't do to have a misfire due to blood in the barrel. For a few moments she stood perfectly still, listening and, finally, looking about at the place she had come to.

The huge square room was lit better than the hallway had been, by small electric spotlights that hung over dozens of pedestals. She had glimpsed those earlier, the canisters and boxes atop them now glowing in surreal majesty. There was nobody else in sight, but she thought she could see another door opposite the one through which she'd entered.

A woman chuckled somewhere; the chuckle turned into a laugh of childish delight.

Venera made her way around the room's perimeter in quick sprints, ducking from pedestal to pedestal. It was hard to tell where the laughter was coming from because sounds echoed off the high ceiling. Faintly through the floor she could still hear the noise of battle.

The laugh came again—this time from only a few yards away. Venera rounded a broad pedestal surmounted by some kind of cannon and stopped dead, pistol forgotten in her hand.

A big clockwork mechanism had been shoved off the next pedestal and now lay shattered on the floor. Little wisps of smoke rose from it. The pedestal itself was covered with the remains of a man.

Somebody was kneeling in the gore and viscera that dripped over the edges of the pedestal. It was a woman, completely nude, and she was bathing—no, wallowing—in the blood and slippery things she was hauling out of the man's torso. She stroked her skin with something, squeezing it as if it were a wet sponge, and gave a little mewl of delight.

Venera raised the pistol and aimed carefully. "Margit! What have you done?"

The former botanist of Liris cocked her head at Venera. She grinned, holding up two crimson hands.

"Don't you get it?" she said. "It's cherries! Red, red cherries, full and ripe."

"Wh-who—" Venera had suddenly remembered the commandant's boast. He had found a hideous death for Garth, he'd said. She stepped forward, staring past a haze of nausea at the few scraps of clothing she could recognize. Those boots—they were Sacrus army issue.

"They trusted me," said Margit as she lowered herself into the sticky mass she was massaging. "These two knew me—so they let me in. When the bombs went off, the wall and door parted a bit—the hinges sprung! I just pushed it open and ran right out of my little room! Nobody there to stop me. So I came here and brought him with me."

"Brought who?"

Margit raised a hand to point at something lying in the shadows of another pedestal. "The one they'd just given to me. My present."

"Garth!" Venera ran over to him. He was on his side, unconscious but breathing. His hands were tied behind his back. Venera knelt to undo the knots, putting her pistol down when she decided Margit was too far into her own delusions to notice.

Far gone she might be, but she'd killed at least two men in this room. "You must have ambushed them," said Venera, making it into a question.

"Oh yes. I was dressed oh so respectably and had my prisoner with me. They were staring out the window, you people were shooting and thrashing

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about somewhere out of sight and I just popped up there in front of them. 'Let me in!' Oh, I looked so scared. As soon as their backs were to me I mowed them down."

"There were only two?"

Margit clucked reproachfully. "How many people do you put inside a locked vault? Two was overkill, but you see the doors don't open from the outside. That's a *precaution.*" She enunciated the word cheerfully.

Venera slapped Garth lightly; he groaned and mumbled something, batting feebly at her hand.

She looked up at Margit again. "Why come here?"

Margit stood up, dripping. "You know why," she said, suddenly serious. "For *that.*" She pointed, straight-armed, at something on the floor.

It was crimson now, but there was no mistaking the cylindrical shape of the key to Candesce. When Venera saw it she gasped and raised the pistol again, cocking it as she tried to haul Garth to his feet with her other hand.

Margit frowned. "Don't deny me my destiny, Venera. Behold!" She struck one of her poses, throwing her arms out in the spotlight. "You gaze upon the Queen of Candesce!"

"V-Venera?" Garth blinked at her, then focused past her at Margit. "What the—"

"Quickly now, Garth." She half carried him over to the blood-smeared stones where the key lay. She let go of him and reached to scoop it up, still keeping a bead on Margit.

The botanist simply stood there, awash in light and gore, and watched as Venera and Garth backed away.

She was still watching when they made it to the chamber's other door and spun the wheel to open it.

16

Venera's parachute yanked viciously at her shoulders. All the breath drove out of her, the world spun, and then a sublime calm seemed to ease into the world: the savage wind diminished, became gentle, and the roar of gunfire faded. Weight, too, slackened and in moments she found herself come to a stop in dawn-lit air that was crisp but hinted at a warm day to come.

All around her other parachutes had bloomed like night flowers. There were shouts, screaming—but also laughter. Corinne's people were taking charge; the air below Spyre was their territory. "Catch this rope!" one of them commanded, tossing a length at Venera. She grabbed it, and he began to draw her in.

The knot of people waited a hundred feet from the madly spinning hull of Spyre. Twenty had arrived here in the early morning hours, but more than seventy were leaving. There hadn't been enough parachutes, but Sacrus had helpfully decorated its corridors with heavy black drapes. Many of these were now held by former prisoners. Having belled with air to brake them, the black squares were now twisting like smoke and were starting to get in the way as people tried to grab one another by wrist, fingertip, or foot.

She pulled herself up Garth's leg, hooked a hand in his belt, and met him at eye level. "Are you okay?" He still seemed disoriented, and for a moment he just stared back at her.

"Did you come for me?" His voice was hoarse and she didn't like to think why. There were burn marks on his cheeks and hands and he looked thinner and older than ever.

Venera smoothed the backs of her fingers down the side of his face. "I came for you," she said, and was surprised to see tears start in his eyes.

"Listen up!" It was the leader of Corinne's troupe. "We've just passed Fin, and I let out the signal flare. In a couple of minutes it's going to come by again, and they'll have lowered a net! We're going to land in that net, all of us. Then we'll be drawn up into Fin. We need to stick together or people will get left behind."

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"Isn't Sacrus going to pass us first?" somebody asked.

"Yes. So everybody with a gun get to the top. And unravel those drapes, we can use them to hide behind."

As Spyre rotated, first Buridan, then Sacrus would go by before Fin came around again. The soldiers of Sacrus had been right on their heels as Venera's group crowded into the basement. Doubtless they would be bringing heavy machine guns down, or grenades or—it didn't bear thinking about because there was nothing to be done. For a few seconds at least, Venera and her people were going to be helpless targets.

"Ouch!" said a woman near Venera's feet. "I—*ouch!* Hey, ohmigod—" She screamed suddenly, a frantic yelp that grew into a wail.

Venera spun around to look. Dark shapes flickered around the woman's silhouette, half seen but growing in number. "Piranhawks!" someone shouted.

A second later there were thousands of them, a swirling cloud that completely enveloped the screaming woman. Her cries turned to horrible retching sounds and then stopped. Buzzing wings were everywhere, caressing Venera's throat and tossing her hair, but so far nothing had bitten her.

Nobody spoke. Nobody moved, and after a minute the cloud of piranhawks began to smear away into the air. They left behind a coiling cloud of black feathers and atomized red, at its heart a horrible thing bereft of blood and flesh.

"Brace yourselves! Here comes the airfall!" Venera looked up in time to see the latticework of girders that supported Buridan Tower flash past. In the next instant a fist of wind hit her.

Garth was nearly torn from her grasp by the pounding air. Two people who had refused to untie themselves from the black drapes were simply blown away, disappearing in moments into a distance blurred with barbed wire and mines. Others simply let go of their neighbors for a second and found themselves being drawn slowly, leisurely away as the airfall passed by and calmer air returned.

"Catch the rope! Catch it!" She watched the lines being tossed and frantic lunges to catch them, then one of the men who'd drifted a few yards away shuddered and spun. Dark lines stood in the air behind him for an instant before snapping and becoming thousands of red droplets. She heard machine-gun fire.

"Sacrus! Return fire!" Everybody opened up on the small knot of pipes and the machine-gun nest as it swept down and at them. Tracer rounds framed and dissected a vision of mauve cloud and amber sunlight. Venera blinked and couldn't see, waved her pistol hesitantly. Then Sacrus lofted up and away and the firing ceased.

"Get ready!"

Ready? Ready for what—the net caught her limp and unresisting, and that probably saved Venera from a broken neck. As thin cords dug into her face and hands she was hauled into speeding air again, faster and faster until all breath was sucked out of her and spots danced in her eyes. Just as the howl and tearing fingers of the hurricane became intolerable it ceased so abruptly that she just lay for a while, staring at nothing. Gradually, she made out voices, sounds of something heavy being shut as the wind sound cut out. Lantern light glowed below a metal ceiling where shadows of people hove to and fro. She rolled over.

Garth Diamandis was sitting up next to her. He probed at the back of his head carefully, then darted his eyes back and forth at the people who surrounded them. "Where are we?"

"Among friends," she said. "Safe. At least for now."

Blood slid down the drain, miniature rivers in the greater flow of water. After all that had happened, Venera was surprised to find that none of it was hers.

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By rights she should have been riddled with holes last night.

The facilities of Fin were primitive, but the water was wonderfully hot. She dallied in the rusted metal cabinet that stood in for a shower, letting the stuff run over and off her in sheets, holding her face under it. Not thinking, though her hands still shook.

A loud banging startled her, and she almost slipped. Venera flung open the sheet-metal door. "What?"

Bryce stood there. His glower turned to distraction as he took in her naked form. In a moment of reflected vision, she saw his gaze lower, pause, drop, pause again. Then he caught himself and met her eyes. "You're going to use up all the hot water," he said in a reasonable tone.

She slammed the door, but it was too late; she could practically feel the line drawn down her body by his eyes. "So what if I use it all?" she said gamely. "You're a man—take yours cold."

"Not if I don't have to." She heard rattling around the side of the enclosure. "There's a master valve here, but I'm not sure whether it's for the cold or the hot. I'll give it a few turns. . . ."

She threw the door open again and stalked past him to grab the rag they'd told her was her towel. Wrapping it around herself as best she could, she did a double take as she saw him watching her again. "Well?" she said. "What are you waiting for?"

"Huh?"

"Get in there." She crossed her arms and waited. Bryce turned his back to her as he undressed, but she didn't give him any relief. It was her turn to admire. With a sour glance that held more than a little humor, he stepped into the stall.

Venera leaned over to look at the side of the enclosure; there was the valve he'd mentioned. It was momentarily tempting to give a few turns—she could imagine his shouts quite vividly—but no. She was an adult, after all.

She left the enclosure and stepped gingerly over the grillwork floor. Despite the stares of those billeted in the hallway, she made her way to where Garth Diamandis lay. He was awake, but listless. Still, he half smiled as he saw her.

"Ah, that you should dress so for me," he murmured.

Venera smoothed the hair back from his brow. "What's wrong?"

He looked away, lips twisting. Then, "It was her. She betrayed me to them."

"Your woman? Wife? Mistress?"

A heavy sigh escaped him. "My daughter."

Venera stepped back, shocked. For a moment she had no idea what to say, because her whole understanding of this man had been changed in one stroke. "Oh, Garth," she said stupidly. "I'm so sorry." *We daughters will do that,* she though, but she didn't say it.

She held his hand for a minute until he gently disengaged it and turned on his side. "You must be cold," he said. "Go get some rest." So, reluctantly, she left him on his cot in the hallway.

She mused about this surprising new Garth as she threaded her way back to her sleeping station. It was hard navigating the place; the nation of Fin was less than thirty feet wide at its broadest point. Since it was literally a fin, an aileron for controlling Spyre's spin and direction, the place was streamlined and reinforced inside by crisscrossing girders. The citizens of the pocket nation had built floors and chambers all through the vertical wing and grudgingly added several ladder wells. Where Garth lay was not a corridor as such, however—just a more or less labyrinthine route between the rooms that were strung the length of the level. Privacy was to be had only within the sleeping chambers, where the ever-present roar of air just behind the walls drowned all other sounds.

Fin didn't have the capacity for an extra seventy or so people. Venera had been informed by an impatient Corinne that they must all leave by nightfall. That

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suited her fine—she had a meeting with the council later today in any case. But she needed to sleep first. So she was grateful for the little bed they'd prepared behind a set of metal cabinets. You had to squeeze around the last cabinet to get in here and there were no windows; still, it had an air of privacy. She rolled out of the towel and under the blanket.

Venera willed herself to sleep, but she was still a mass of nerves from the events of the night. And, she had to admit, there was something else keeping her awake. . . .

A blundering noise jolted her into sitting up. She groped for a nonexistent weapon. Somebody was blocking the light that leaked around the cabinets. "Who—"

"Oh, no! You!" Bryce stood there, his nakedness punctuated by the towel at his waist. His hands were on his hips.

Venera snatched up the blanket. "Don't tell me they put you in with me."

"Said there wasn't any room. Last good place was here." He crossed his arms. "Well?"

"Well what?"

"You've had at least fifteen minutes to sleep. My turn."

"Your—?" She reached for one of her boots and threw it at him. "Get out! This is my room!" Bryce ducked adroitly and stepped up, grabbing at her wrist. She rabbit-punched him in the stomach; the only effect was that his towel fell off.

He took advantage of her surprise to make a play for the bed. She managed to keep him from taking it, but he did grab the blanket. She pulled it back. She kicked him, and he toppled onto the mattress. He sprawled, laying claim to as much of it as he could, and pushed her to the edge.

"No you don't! My bed!" She tried to climb over him, aiming to reconquer the corner, but his hand was on her wrist, then her shoulder and her breast, and his other gripped the inside of her thigh. Bryce picked her up that way and would have thrown her off the bed if she hadn't squirmed her way loose. She landed straddling him and grabbed for the sheets on either side of his shoulders so when he pushed at her she had a good grip.

He was getting hard against her pubic bone and his hands were on her breasts again. Venera mashed her palm against his face and reared back but now his hands were on her hips, and he was pulling her hard against him. They rocked together and she clawed at his chest.

Grabbing him around the shoulders she kissed him, feeling her nipples tease the hairs on his chest. All their movement was making him slide against her wetness and suddenly he was inside her. Venera gasped and reared up, pushing down on him with all her weight.

She leaned forward until they were nose to nose. *"My* bed," she hissed, grinning.

They were locked together now and each motion by one made the other respond. She had a hand behind his neck and his were behind her spreading her painfully as they kissed and the bed shook and threatened to collapse. She bucked and rode him like the Buridans must have ridden their horses, all pounding muscle under her until wave after wave of pleasure mounted up her core and she came with a loud cry. Moments later he did the same, bouncing her up and nearly off of him. She held on and rode it out, then collapsed on the bellows of his chest.

"See?" he said. "You can share."

Well.

Venera wasn't about to dignify his statement with a response; but this was certainly going to change things. Now sleep really was coming over her, though, and she had no ability to think more about it. She nuzzled his shoulder.

Damn it.

The Spyre Council building was satisfyingly grandiose. It sprawled like a well-fed spider over an acre of town wheel,

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with outbuildings and annexes like black-roofed legs half encircling the nearby streets, plazas, and offices of the bureaucracy. The back of the spider was an ornate glass and wrought-iron dome surmounted by an absurdly dramatic black statue of a woman thrusting a sword into the air. The statue must have been thirty feet tall. Venera admired it as she strolled up the broad ramp that led to the council chamber.

She was aware of many eyes watching her. Word had gotten around quickly of the events last night, and Lesser Spyre was quietly but visibly tense. Shops had closed early; people hurried through the streets. The architecture of the spider did not permit large assemblies—Spyre was not the sort of place to encourage mass demonstrations—but the people were a presence here nonetheless, standing in groups of two to ten to twenty on street corners and under the shadowy canopies of bridges. It was their presence, and not memory or reason, that convinced Venera that she had today done something highly significant.

Her own appearance must confirm that. She wore a high-collared black leather coat over a scarlet blouse, with her bleached shock of hair standing straight up and silver trefoil-shaped bangles the size of her hand hanging from her ears. Her make-up was dark—she'd redrawn her brows as two obsessively black lines. Trailing behind her in a V-formation like a flock of grim birds were two dozen people, all similarly startling to look upon. Some appeared pale and unsteady, their faces and exposed hands bearing bruises and burn marks. Others attended these souls, and marching behind like giant tin toys were soldiers of Liris and various preservationist factions. Venera knew that Bryce's people peppered the crowds, there to listen and give an alert if necessary.

"Do you think Jacoby Sarto brings his gun to council meetings?" she asked offhandedly. Corinne, who was walking beside her, guffawed.

"Here," she said, handing Venera a large black pistol, "try to take this in and see what happens. No, seriously. If they don't stop you, then he's probably got one too. You may need to get the drop on him."

"I can do that." She took the pistol and slipped it into her jacket, which promptly dragged down her right collar. She transferred it to the back of her belt.

"Not *too* obvious," said Corinne doubtfully.

A preservationist runner puffed to a stop next to her and saluted. "They're on the move, ma'am. Five groups of a hundred or more each were just seen exiting the grounds of Sacrus. They're in no-man's land now, but they have nowhere to go except through their neighbors. . . . Of course, they own most of those estates. . . ."

"What have they got?" she asked. "Artillery?" He nodded.

"We're moving to secure the elevator cables, but they're doing the same thing," he continued. "There's been no shots fired yet. . . ."

"All right." She dismissed the details with a wave of her hand. "Let me see what we can do in council. We'll talk after that." He nodded and backed off.

The big front doors of the building were for council members only. The ceremonial guards there, with their plumed helmets and giant muskets, raised their palms solemnly to exclude the people following Venera. She turned and gestured with her chin for them to go around the side; she'd been told there was a second, more traveled entrance there for diplomats, attachés, and other functionaries. She strode alone into the frescoed portico that half circled the chamber itself.

The bronze council chamber doors were open, and a small crowd was milling there. She recognized the other members; they were just filing in.

Jacoby Sarto was talking to Pamela Anseratte. He looked relaxed. She looked tense. He spotted Venera and,

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surprisingly, smiled.

"Ah, there you are," he said, strolling over to her. Venera glanced around to see what other people—pillars or statues to hide behind—were nearby, and started to reach for the pistol. But Sarto simply took her arm and led her a bit to the side of the group.

"The preservationists and lesser countries are following you right now," he said. "But I can't see that continuing, can you? The only leverage you've got is the name of Buridan."

She extricated her arm and smiled back at him. "Well, that depends on the outcome of this meeting, I should think," she said. He nodded affably.

"I'm here to engineer a crisis," he said. "How about you?"

"I should have thought we were already in a crisis," she said cautiously. "Your troops are on the move."

". . . And we've seized the docks," he said. "But that may not be enough to serve either of our interests." She tried to read his expression, but Sarto was a master politician. He gave no sign that Spyre was balanced on the edge of its greatest change in centuries.

"Our interests aren't the same," he continued, "but they're surprisingly . . . compatible. You're after power, but not so much power as you'd have to have if you used the key again. It's difficult—you possess the ultimate weapon, but no way to use it to get what you want. But the blunt fact is that as long as we hold the docks, the little trinket you stole from us last night is even worse than useless to you," he said. "It's an active liability."

She stared at him.

Apparently oblivious to her expression, Sarto continued as though he were discussing the budget for municipal plumbing contracts. "On the other hand, the polarization of allegiance you're generating is useful to us. I've been impressed, Ms. Fanning, by your abilities—last night's raid came as a complete surprise, advantageous as it's turned out to be. You got what you wanted, we get what we want, which is to flush out our enemies. The only matter of dispute between us, privately, is that ivory wand you took."

"You want it back?"

He nodded.

"Go fuck yourself!" She started to stalk toward the giant doorway but couldn't resist turning and saying, "You tortured my man Garth! You think this is a game?"

"The only way to win," he said so quietly that the others couldn't hear, "is to treat it as one." Now his expression was serious, his gray eyes cold as a statue's.

It was suddenly clear to Venera that Sacrus already knew what she had been planning to say and do here today—and they approved. She made an excellent enemy for them to rally their own forces around. If they had needed an excuse to extend martial law over their neighbors, she had provided it. If civil war came, they would have their justification for marshaling the ancient Spyre fleet. The civil war would provide a nice smokescreen behind which they could seize Candesce. It wouldn't matter then whether they won or lost back home.

She had given them the enemy they needed. Sarto's candid admission of the fact was a clear overture from him.

Venera hesitated. Then, deliberately clamping down on her anger, she walked back to him. They were now the only council members remaining in the hall. The others had taken their seats, and she saw one or two craning their necks to watch their confrontation.

"What do I get if I return the key?" she asked.

He smiled again. "What you want. Power. For the rest, take your satisfaction by attacking us. We know you'll be sincere. We're counting on it. Only return the key, and at the end of the war you'll get everything you want. You know we can deliver." He held out his hand, palm up.

She laughed lightly, though she felt

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sick. "I don't have it with me," she said. "And besides, I have no reason to trust you. None at all."

Now Sarto looked annoyed. "We thought you'd say that. You need a guarantee, a token of our sincerity. My masters have . . . instructed me . . . to provide you with one."

She laughed bitterly. "What could you possibly give me that would convince me you were sincere?"

His expression darkened even further; for the first time he looked genuinely angry. Sarto spoke a single word. Venera gaped at him in undisguised astonishment, then laughed again. It was the bray of disdain she reserved for putting people down, and she was sure Sarto knew it.

However, he merely bowed slightly and turned to indicate that she should precede him into the chamber. The doors were wide, and so they entered side by side. As they did so, Venera caught sight of Sarto's expression and was amazed. In a few seconds he underwent a gruesome transformation, from the merely dark expression he'd displayed outside to a mask of twisted fury. By the time they split up halfway across the polished marble floor, he looked like he was ready to murder someone. Venera kept her own expression neutral, her eyes straight ahead of her as she climbed the red-carpeted steps to the long-disused seat of Buridan.

The council members had been chatting, but one by one they fell silent and stared. Several of those were gazes of surprise; although they were masked, the ministers from Oxorn and Garatt were poised forward in their seats as if unsure whether to run or dive under their chairs. August Virilio's usual expression of polite disdain was gone, in its place a brooding anger that seemed transplanted from an entirely different man.

Pamela Anseratte stood as soon as they were seated and banged her gavel on a little table. "We were supposed to be gathering today to discuss the change of stewardship of the Spyre docks," she began. "But obviously—"

"She has started a war!"

Jacoby Sarto was on his feet before the echoes of his voice died out—and so were the rest of the ministers. For a long moment everyone was talking at once while Anseratte pounded her gavel ineffectually. Then Sarto held up one hand in a magisterial gesture. He gravely hoisted a stack of papers over his head. "I hold the signed declarations in my hand," he rumbled. "This is nothing less than the start of that civil conflict we have all been dreading—an unprovoked, vicious attack in the heartland of Sacrus itself—"

"To rescue those people *you* kidnapped," Venera said. She remained obstinately in her seat. "Citizens of sovereign states, abducted from their homes by agents of Sacrus."

"Impudence!" roared Sarto. Half the members were still on their feet; in the pillared gallery that opened up behind the council pew, the coteries of ministers, secretaries, courtiers, and generals that each council member held in reserve were glaring at one another and at her. Several clenched the pommels of half-drawn swords.

"I have a partial list of names," continued Venera, "of those we rescued from Sacrus's dungeon last night. They include," she shouted to drown out hecklers from the gallery, "citizens of every nation represented on this council, including Buridan. The council will not deny that I had every right to seek the repatriation of my own kinsmen?" She looked around, locking eyes with the unmasked members.

Principe Guinevera's jowls quivered as he thunked solidly into his seat. "You're not going to claim that Sacrus stole one of my citizens? Surely—" He stopped as he saw her scan the list and then hold up her hand.

"Her name is Melissa Ferania," said Venera.

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"Ferania, Ferania . . . I know that name . . ." Guinevera's brows knit. "It was a suicide. They never found a body."

Venera smiled. "Well, you'll find her right now if you turn your head." She gestured to the gallery.

The whole council craned their necks to look. People had been filing into the Buridan section of the gallery for several minutes; in the ruckus, nobody on the council had noticed.

On cue, Melissa Ferania stood up and bowed to Guinevera.

"Oh my dear, my dear child," he said, tears starting at the corners of his eyes.

"I have more names," said Venera, eyeing Jacoby Sarto. Everyone else was staring into the gallery, and he took the opportunity to meet her eye and nod slightly.

Venera felt a sinking sensation in the pit of her stomach.

She had stage-managed this confrontation for maximum effect, calling for volunteers from the recently rescued to attend the scheduled council meeting with her. Garth alone had refused to come; pale and still refusing to talk about his experience in the tower, he had remained outside in the street. But there were prisoners from Liris here as well as half a dozen other minor nations. As her trump card, she had brought people taken from the great nations of the council itself.

Sarto seemed more than unfazed at this tactic. He seemed *satisfied*.

She realized that a black silence had descended on the chamber. Everyone was looking at her. Clearing her throat, she said—her own words sounding distant to herself—"I move for immediate censure of Sacrus and the suspension of its rights on the Council of Spyre. Pending, uh . . . pending a thorough investigation of their recent activities."

For once, Pamela Anseratte looked out of her depth. "Ah . . . what?" She pulled her gaze back from the gallery.

August Virilio laughed. "She wants us to expel Sacrus. A marvelous idea if I do say so myself—however impractical it may be."

Venera rallied herself. She shrugged. "Gain a seat, lose a seat . . . besides," she said more loudly, "it's a matter of justice."

Virilio toyed with a pen. "Maybe. Maybe—but Buridan forgot its own declaration of war before it invaded Sacrus. That nullifies your moral high ground, my dear."

"It doesn't nullify *them.*" She swept her arm to indicate the people behind her.

"Yes, marvelous grandstanding," said Virilio dryly. "No doubt the majority of our council members are properly shocked at your revelation. Yet we must deal with practicalities. Sacrus is too important to Spyre to be turfed off the council for these misdemeanors, however serious they may seem. In fact, Jacoby Sarto was just now leveling some serious charges against *you.*"

There was more shouting and handwaving—and yet, for a few moments, it seemed to Venera as though she were alone in the room with Jacoby Sarto. She looked to him, and he met her gaze. All expression had drained from his face.

When he opened his mouth again it would be to reveal her true identity to these people: he would name her as Venera Fanning and the sound of her name would act like a vast hand, toppling the whole edifice she had built. Though most of her allies knew or suspected she was an imposter, it had been neither polite nor expedient for them to admit it. If forced to admit what they already knew, however, they would find her the perfect person to blame for the impending war. All her allies would desert her, or if they didn't, at least they would cease listening to her. Sarto had the power to cast her out, have her imprisoned . . . if she didn't counter with her own bombshell.

This was the great gamble she had known she would have to take if she came here today. She had rehearsed it in

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her mind over and over: Sarto would reveal that she was the notorious Venera Fanning, who was implicated in dastardly scandals in the principalities. Opinion would turn against her and so, in turn, she would have to tell the people of Spyre another great secret. She would reveal the existence of the key to Candesce and declare that it was the cause of the coming war—a war engineered by Sacrus for its own convenience.

And now the moment had come. Sarto blinked slowly, looked away from her, and said, "I have here my own list. It is a list of innocent civilians killed last night by Amandera Thrace-Guiles and her men."

Braced as she was for one outcome, it took Venera some seconds to understand what Sarto had said. He had called her *Amandera Thrace-Guiles*. He was not going to reveal her secret.

And in return, he expected her not to reveal his.

The council members were shouting; Guinevera was embracing his long-lost country woman and weeping openly; August Virilio had his arms crossed as he stared around in obvious disgust. Swords had been drawn in the gallery, and the ceremonial guards were rushing to do their job for the first time in their lives. Abject, shoulders slumped, Pamela Anseratte stood with gesturing people and words swirling around her, her hand holding a slip of paper that might have been her original agenda for the meeting.

It all felt distant and half real to Venera. She had to make a decision, right now.

Jacoby Sartò's eyes were drilling into her.

She cleared her throat, hesitated one last second, and reached behind her. ■

To be concluded.

IN TIMES TO COME

Science fiction and fact come unusually close together in our June issue. Richard A. Lovett's fact article, with the improbable title of "Cryovolcanoes, Swiss Cheese, and the Walnut Moon," surveys the wealth of new information gained by NASA's Cassini probe about the rings and moons of Saturn. And his lead novella, "The Sands of Titan," is a tense tale of adventure set on one of them, incorporating some of that new knowledge and heralded by a dramatic cover by David A. Hardy. We'll also have stories by Rajnar Vajra (and for those few readers who've been tricked by this in the past, I warn you that just because a story starts off *looking* like fantasy doesn't mean it *is*!), Carl Frederick, Scott William Carter, and Geoffrey A. Landis. And, wrapping it all up, the conclusion of Karl Schroeder's sweeping novel *Queen of Candesce*.

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THE REFERENCE LIBRARY Tom Easton

Command Decision, Elizabeth Moon, Del Rey, $24.95, 387 pp. (ISBN: 0-345-49159-9).

Horizons, Mary Rosenblum, Tor, $24.95, 316 pp. (ISBN: 0-765-31604-8).

Sagramanda, A Novel of Near-Future India, Alan Dean Foster, Pyr, $25.00, 297 pp. (ISBN: 1-59102-488-9).

The New Moon's Arms, Nalo Hopkinson, Warner, $23.99, 323 pp. (ISBN: 0-446-57691-3).

Last Flight of the Goddess, Ken Scholes, Fairwood Press, $25.00, 108 pp., 250 copy limited edition (ISBN: 0-9789078-0-9).

Human Visions: The Talebones Interviews, Ken Rand, Fairwood Press, $17.99, 244 pp. (ISBN: 0-9746573-9-5).

The Darkening Garden: A Short Lexicon of Horror, John Clute, Payseur & Schmidt (www.payseurandschmidt.com), $45.00, 165 pp., 500 copy limited edition (ISBN: 0-9789114-0-7).

Technology Matters: Questions to Live With, David E. Nye, MIT Press, $27.95, 282 + xvi pp. (ISBN: 0-262-14093-4).

The saga of doughty Kylara Vatta keeps getting better! Elizabeth Moon introduced her in *Trading in Danger* (reviewed here in March 2004) as the sturdy, independent, spirited daughter of a major trading clan. Booted in disgrace from the military academy, she hied off with a decrepit spaceship only to become a privateer when, in *Marque and Reprisal* (January-February 2005), most of the Vatta clan back on Slotter Key was destroyed and the interstellar communications network of ansibles crashed. In *Engaging the Enemy* (September 2006), she tried to form a force that could fight the pirate fleets, but with only partial success. Now we have **Command Decision**, in which Kylara's tiny fleet must rearm at a station that views the rest of the human universe as scum to be exploited, while Rafe, scion of ISC, the company that owns and used to maintain the ansible network, returns home to find out what has gone wrong, cousin Stella does her best to revive the Vatta trade network, boy genius Toby improves the ansibles, and Aunt Grace takes over Slotter Key's defense department.

They don't know it, but the pirates haven't got a chance. It doesn't take long for Rafe to discover that his family has been kidnapped and to mount a rescue effort. One of Grace's first moves is to repair the local ansible, something that ISC does *not* allow (only authorized service representatives are allowed to touch the devices; anyone else gets visited by a punitive fleet). Rafe winds up in charge of ISC, though before he can do anything productive he has to weed out the bad guys. Ky drops into a system where pirates are attacking Mackensee mercenaries, intervenes, repairs the local ansible, and sets the stage for a convergence of Mackensee reinforcements, more pirates, and an ISC punitive fleet.

Everything works out, of course, and the next volume will see Kylara one step closer to being the Grand High Admiral of the Space Patrol. The big question is Rafe. Kylara keeps thinking of him, and he keeps thinking of her. Will they ever get together?

Moon definitely has the gift. Engaging characters, great plot, great action, great

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pacing. I look forward to each new installment in the saga.

Mary Rosenblum's **Horizons** is a very readable tangle of schemes and deceptions that begins when Ahni Huang, daughter of a major Taiwanese Family (in an age when familiar corporations seem to have been replaced with Family organizations), travels up the space elevator to New York Up (NYUp), a huge habitat or "platform" ruled by the North American Alliance. Her mission is simple. Her half-twin brother Xai has been killed, the World Council has granted her Family the Right of Reply, and she is hunting the killer. To help her out, she has a host of internal enhancements and she is a Class 9 empath capable of reading intentions. And she needs it all when assassins prove to be waiting for her.

When she flees, she winds up in the platform's greenhouse, where she meets Koi, an odd-looking kid who doesn't seem truly human, and Dane, the agronomist in charge of the plants, who assures her that Koi and his family are really quite human, just a new evolutionary branch busily adapting to the zero-gee environment. No, he insists, he has NOT been tinkering with human genes, which is the sole remaining death-penalty offense. And please don't talk, or someone will jump to the wrong conclusions. Humanity is not very good about dealing with difference.

That's when the thugs show up and kidnap Koi, leaving a hotel room key behind. Ahni grabs the key and rushes off to rescue Koi, and soon she is facing . . . her brother? He's not dead? Something strange is clearly going on, and it doesn't become any clearer when she returns to Earth and her mother says she shouldn't tell her father Xai lives. So she doesn't, but she must still fess up to not killing Xai's killer and then bear the accusations of letting down the family honor.

Meanwhile, Dane and the NYUp administrator, Laif, are facing a rising tide of resentment against Earthside control and talk of secession. When things get a bit rough, the media are inevitably on hand, and soon voices in the World Council are clamoring for military intervention to quell the "riots"; an independent platform society is only to be feared, for it could threaten Earth with rocks from space. There are strong hints that *agents provocateur* are at the root of it, but there is no clue to why. Rosenblum helps the reader out by showing Xai meeting with Li Zhen, the chief of the Chinese platform, son of the Earthside Chinese leader and perhaps a man with ambitions to empire.

And down on Earth, Ahni can't stop thinking of Dane. Soon she is on her way back up, just in time to get right in the middle of everything, discover that Li Zhen has a son a lot like Koi, see Dane arrested for illegal genetic engineering, and . . .

Well, most of what I have mentioned so far isn't much more than sideshow. The *real* scheme is something else again, and while it is reasonably impressive, it is not foreshadowed. The book is readable, the characters are well handled, and the plotting and pace are very satisfying. But when that real scheme flies out of the blue, the reader may feel cheated. Up to that point, Rosenblum's plot is entirely capable of carrying the weight of the book by itself. In a sense, the addition invalidates much of what went before.

This is one of those books you can save money on. It's readable, but flawed. Wait for the paperback.

Alan Dean "Variety" Foster refuses to be typecast. He has written SF&F, detective, horror, western and historical fiction, popular science, scripts, and novelizations. So what should you expect when you pick up **Sagramanda, A Novel of Near-Future India**? Well, it has a bit of SF, some detective, some thriller, and a great deal of the colorful, chaotic bouillabaisse that is India, a crowded, resource-poor realm of immense econom-

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ic contrasts.

Yet even though it is very readable, I found it deeply flawed by Foster's decision to play coy with the reader. The heart of the tale is that of Taneer, a scientist who has stolen from his company some magical secret. Now he wants to sell it for *very* big bucks. But what's the secret? It's some sort of technology, and Taneer was involved in creating it, but Foster doesn't even identify the kind of business Taneer's employer is engaged in. Nor does he say why Taneer is stealing it. Is the guy just a greedy crook? But he seems such a nice fellow, fallen in love with a beauty of the Untouchable caste and thereby disgraced in his family's eyes. He doesn't seem like thieving scum. Was the company planning to kill the project? Was he being robbed of credit? Or is the girl the point? He's stuck on her, he wants good things for her, but she's stuck on him and is *not* demanding wealth. If he is bent on giving her the economic Moon anyway, he is not as rational as he otherwise seems.

Is Foster pretending to be more of a journalist? Saying it doesn't matter why, just that this is what is happening? But he spends much more time on the internals of the psychotic Kali devotee who is killing residents of and visitors to Sagramanda, city of one hundred million, the police detective who is hunting for her, Taneer's father, who has come to Sagramanda intending to murder his son and his slut, the shop owner who is contacted by Taneer and is delighted at the prospect of a three percent commission, the secret agent and sometimes assassin who is hunting for Taneer to return him to his employers, and even the massive tiger who has emerged from the jungle to discover that people are tasty. There are loads of good stuff here, and the reader is quite confident that there will be a juicy climax that brings all the disparate pieces together, but I found the refusal to identify the macguffin and to motivate Taneer so maddening that I actually peeked at the last few pages way ahead of time.

No, I won't tell you what the macguffin is. But I will say it is indeed one that would be valuable to society and to certain businesses, while other businesses might want to suppress it. And despite Foster's coyness, he is such a deft and evocative writer that *Sagramanda* is a good read anyway. Enjoy it.

Nalo Hopkinson's **The New Moon's Arms** fits best that literary category known as magical realism. The setting is modern and the tone is rationalist, but there are fantastic events in plenty and at the tale's heart there is a folk tale with a historical root.

The setting is the Caribbean islands of Dolorosse and Cayuba. Calamity (born Chastity) Lambkin is burying her Dadda, whom she has tended through his last two years of illness. There is grief and love and doubt, for her mother vanished years ago and no one is sure that Dadda did not kill her. She meets Gene, an old protégé of Dadda's and takes him home to bed. But Calamity has long had a problem of temper, so soon Gene is running home and she is getting blind drunk on the beach. When she wakes she finds a toddler enmeshed in seaweed, speaking no known language, a bit blue of skin and webbed of finger, and before long she is herself enmeshed in a desire to foster the kid.

Meanwhile, the local Zooquarium is having a problem with its seal inventory. Some days there are too many, some days too few. At this point the experienced reader begins to wonder about selkies, and now I must shift the topic to Calamity's daughter Ifeoma, sometimes estranged, sometimes not; Ifeoma's dad, once a teen on whom Calamity was stuck when he announced a preference for boys and she challenged him to test that idea with her (no wonder she seems so homophobic, except she's not phobic; she's just *real* pissed); and finally Charity's past record as a "finder," someone with a gift for finding lost

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things. Quite strangely, Calamity is now getting tinglings and hot flashes. The doctor says it's menopause, and she wishes it was, but every blessed time the flash is immediately followed by a long lost plate, toy truck, or teddy bear falling out of the air. And that's just the beginning, though Calamity's Mama doesn't show up (if you're familiar with the tales of the seal-folk, you might guess what does).

Meanwhile, Hopkinson is interpolating short passages about a slave ship on its way across the Atlantic. One of the prisoners is a woman of power who is desperate to escape. In due time, an opportunity will arise, a creature will swim past the ship, and a future will be born of the new moon's arms.

The pieces fit together in a remarkably satisfactory way. Calamity and her friends are characters of the sort we see more often in regional fiction than in SF&F, rich with folksy humor, raunchiness, and complications. They live, they enchant, they entice, and the reader's world is the richer for this marvelous book.

Ken Scholes is one of the better writers you've never heard of. Or perhaps you have, if you read small press mags such as *Talebones*, in which case you may still not know he has a book (admittedly thin) out. It's **Last Flight of the Goddess**, and it begins with "I shed no tears when I put the torch to my wife."

That's a nice hook, and it's a great entree to the tale of an old man who was once a fantasy hero in the familiar Conanesque mold. And Andro Giantslayer, exiled King of Grunland, Finisher of Fang the Dread, and Founder of the Heroes League of Handen Hall, is still a hero, worthy of the admiration of Andrillia, a young bardess in search of a saga that will win fame and fortune.

The tale alternates reminiscence with Andro's adventures as he seeks to return his wife's ashes to the sky from which she fell so many years before (Oingeltonken's Flights of Fancy Winged Shoes were never terribly reliable). It is warm and loving, and a very enticing invitation to look at any future item with the Scholes name on it.

Another Fairwood Press title you may find worth a look is **Human Visions: The Talebones Interviews**. Between 1996 and 2006, Ken Rand (I reviewed his *Dadgum Martians Invade the Lucky Nickel Saloon!* two issues ago) interviewed a wide variety of SF&F authors, from Spider Robinson to Ben Bova to C. J. Cherryh to Roger Zelazny and twenty-six more. The Spider interview focuses on his fiction and fails to mention his stint as *Analog* reviewer, but what the hey. He's made more people read by making them laugh than he ever did by telling them about good books, and Rand does an excellent job of drawing him out. Ditto the rest, and this is one that deserves a place on every fan's bookshelves.

A curiosity that has come my way is John Clute's **The Darkening Garden: A Short Lexicon of Horror**, done up as an artful hardbound with a decorative sash, an accompanying pamphlet containing an interview with Clute, and a pack of thirty postcards bearing the artwork from the book. The book serves up a series of essays on terms—aftermath, vastation, revel, infection, sighting, thickening, and more—that arise in viewing horror with the eye of a literary critic, which Clute is *par excellence*. The discussions refer frequently to *The Encyclopedia of Fantasy* by Clute and John Grant. (The publisher's website mentions a forthcoming *Encyclopedia of Horror*, so perhaps the material will appear again in that volume.)

It is worth noting that the book is not only a lexicon. As Clute dissects the terms he has chosen to address, it becomes as well a taxonomy of the horror genre and thus of considerable interest to horror fans.

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For over twenty years, David Nye has been writing trenchant analyses of the relationship of technology to society. Among his many books are his consideration of the way technological constructs (from railroads to dams and skyscrapers to electric light) have supplanted the classic sublime of nature (see *The Technological Sublime*, 1994) and his thoughtful study of the stories we tell ourselves about technology and national identity (see *America as Second Creation*, 2003). His latest is something of a summary of his thought to date as well as a compact review of the state of thought about the area of technology and society. It is worth mentioning here (as Nye's work often is) because the *Analog* audience is concerned with the same area, albeit usually in a less abstract, academic sense.

The book is **Technology Matters: Questions to Live With**, and among the questions he addresses is the classic one of who's in charge here. Does technology push us around? Does it shape our behavior and our social arrangements? Or do we shape and control technology? Many critics of technology insist on the former view; we are at the mercy of our technologies and we have little say in the way they are chosen or used. Yet, says Nye, technology matters because it is at the heart of what makes us human. And there are a number of examples to show that we can choose how to use technologies. One of those examples involves oil and automobiles, which dominate the US partly because our early choices led to a massive infrastructure that is very difficult to change. Some European countries have chosen differently. Denmark, where Nye lived and worked for many years, gets a large amount of its energy from wind and remains a very bicycle-friendly place. And in most of Europe, cars are much smaller than in the US, per capita energy usage is about half that in the US, and the standard of living is comparable.

This issue is only one of ten that Nye takes up in turn. He begins with whether we can define technology and moves steadily through the predictability of technology; whether it encourages cultural uniformity or diversity (Levittown, PA, has long been cited in support of the former, yet a visit to Levittown reveals that people—enabled by technology—have layered their own diverse preferences atop the uniformity of mass-produced housing); sustainability; the impact on jobs and work; whether technologies should be chosen by the market or (somehow) the people; whether technology makes us more or less secure; and whether it adds to our awareness of the world or removes us from equally legitimate (older) modes of understanding. The questions are important because they imply that we have a choice of futures, some of them surely more benign than others, and Nye frequently cites science fiction for its explorations of how things may turn out. The answers are perhaps another matter, for there are examples to be found to support more than one. The point, again, is choice, and "the burden of my argument has been that there is no single, no logical, and no necessary end to the symbiosis between people and machines. For millennia, people have used tools to shape themselves and their cultures [with] many unexpected and not always welcome consequences. . . . For millennia we have used technologies to create new possibilities." The lack of pat answers leads Nye to quote Rilke that "we must 'try to love the questions themselves like locked rooms and like books that are written in a very foreign tongue.'" Only thus can we preserve our choices.

I teach science, technology, and society courses (among others). This book may well find a place on a future syllabus, which will ensure that my students read it. You I can only urge to read it. It's worth your money, time, and thought. ■

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BRASS TACKS

Dear Dr. Schmidt,

In the fifteen or so years that I've read your magazine, one overarching theme has been the tendency for articles related to the medical field to contain significant rubbish. Your Jan/Feb editorial continues this arc. What starts out as an interesting treatise on the (usually inverse) roles of personal and societal responsibility devolves into "sloppy-minded" (your words) thinking. On the factual side, your idea about bringing evolution into the medical realm won't work for the conditions you discussed. While it is true that smokers, drinkers, and over-eaters do tend to shorten their lives, they typically do it long after their reproductive years are over. Therefore, these life-style choices don't exert any evolutionary pressure on the gene pool. After thirty years in the medical profession, I can assure you that smokers, drinkers, and overeaters have no problem with reproducing. Also, since these are primarily learned behaviors, people who make these life-style choices tend to "breed true," producing offspring with similar behaviors. However, if you want to bring evolution into play in order to lower medical costs, I'd have you look into not treating juvenile diabetes, asthma, sickle-cell anemia, and cystic fibrosis. These diseases are either strongly or completely genetically influenced, and the untreated would definitely suffer reproductive consequences.

On the opinion side, I would find this medical "triage" to be reprehensible. Besides, it is a short and slippery slope from not treating genetically flawed patients to searching them out and sterilizing them or otherwise inhibiting reproduction. This could be done "Southern Style" (the eugenics approach), or "German Style" (the cataclysmic technique).

In regards to having patients pay for (some of) their health care, after bringing costs into line—nice idea, but it won't work. Some people are so mired in poverty that even if health care was priced like, say, car repair, they still couldn't afford it. In fact, a lot of them can't afford car care, or even cars. Now you are left with the choice of either having a subsidized health system for qualified individuals (back to square one), or denying health care based on income (social Darwinism). As an added point, if you think that making people responsible for their health care costs would make them more likely to improve their life-styles, what do you make of the Europeans? They all have cradle-to-grave health care. Does one then conclude that they make poor life-style choices any more often than Americans? I doubt that research would bear this out (autobahn driving perhaps an exception).

What disappoints and worries me most when I see medical malarkey is the possibility that editorials and fact articles on other subjects might be equally flawed. I'd like to think that all those articles on physics, cosmology, and such are carefully vetted and that I'm being

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treated to a reasonably accurate picture of how these fields of science are evolving.

K. A. Newman M.D.
Prairie Village, KS

Looks like it's time for another reminder of the difference between fact articles (which we do try to keep as strictly factual as we can) and editorials and Alternate Views (which are at least partly opinion pieces intended to provoke further thought, sometimes by espousing viewpoints which are deliberately outrageous or at least tongue-in-cheek).

Nothing I said, though, is anywhere near as outrageous as your suggestion of denying treatment to people with genetic diseases, which is utterly alien to the spirit of anything I said or thought. You latched onto my parting afterthought about evolution as if it were my main topic. It wasn't; I was talking about finding ways to get people to be more personally responsible. They are not responsible for their genes; they are responsible for their behavior. You're right that the evolutionary effect of my suggestion would be minor (though not nonexistent), but there are plenty of other reasons to encourage and require people to take responsibility for their own actions.

Furthermore, I explicitly said that I was not presenting a finished solution, but rather a starting point for discussion that might lead somebody to come up with a better one. Merely lambasting what I said as "rubbish" or "malarkey" is not much of a step in that direction. ■

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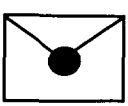

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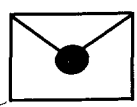

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UPCOMING EVENTS Anthony Lewis

29 March–1 April 2007
WORLD HORROR CONVENTION 2007 (Horror conference) at Toronto Marriott Downtown Eaton Center, Toronto, Ontario, Canada. Guests of Honor: Michael Marshall Smith, Nancy Kilpatrick; Artist Guest of Honor: John Picacio; MC: Sephera Giron; Publisher Guest of Honor: Peter Crowther. Editor Guest of Honor: Don Hutchison. Info: www.whc2007.org; Amanda@whc2007.org.

30 March–1 April 2007
CONBUST 07 (central Massachusetts SF conference) at Smith College, Northampton, MA. Guests: Patricia Briggs, Lynn Flewelling, Jeph Jaques, Diane Kelly, Allen Steele, Jess Hartley, Jim Cambias. Registration: $18 ($6 Friday, $8 Saturday, $6 Sunday). Info: http://sophia.smith.edu/conbust; conbust@gmail.com.

6–9 April 2007
CONTEMPLATION (58th British National SF Convention) at Crowne Plaza (a.k.a. Chester Moat House), Chester, UK. Registration: GBP45 attending, GBP20 supporting. Info: http://contemplation.conventions.org.uk; membership@contemplation.conventions.org.uk; 379 Myrtle Road, Sheffield S2 3HQ, UK.

13–15 April 2007
WILLYCON IV (Nebraska SF conference) at Wayne State College, Wayne, NE. Guest of Honor: James Alan Gardner; Artist Guests of Honor: Taki Soma and Zach Miller; Fan Guest of Honor: Terry Hickman and Will Pereira. Info: www.willycon.com; scifict@wsc.edu; WillyCon, c/o Ron Vick (or Stan Gardner), Wayne State College, 1111 Main St., Wayne NE 68787

20–22 April 2007
RAVENCON 2007 (Virginia SF conference) at Double Tree Hotel, Richmond Airport, Sandston, VA. Guest of Honor: Robert J. Sawyer; Artist Guest of Honor: Steve Stiles; Fan Guest of Honor: Jan Howard Finder. Registration: $35 until 19 April 2007, $40 at the door. Info: www.ravencon.com; info@ravencon.com.

30 August–3 September 2007
NIPPON 2007 (65th World Science Fiction Convention) at Pacifico Yokohama, Yokohama, Japan. Guests of Honor: Sakyo Komatsu and David Brin. Artist Guests of Honor: Yoshitaka Amano and Michael Whelan. Fan Guest of Honor: Takumi Shibano. Registration: USD 220; JPY 26,000; GBP 125; EUR 186 until 30 June 2007; supporting membership USD 50; JPY 6,000; GBP 28; EUR 45. This is the SF universe's annual get-together. Professionals and readers from all over the world will be in attendance. Talks, panels, films, fancy dress competition—the works. Nominate and vote for the Hugos. This is only the third time Worldcon will be held in a non-English speaking country and the first time in Asia. Info: www.nippon2007.org; info@nippon2007.org. Nippon 2007/JASFIC, 4-20-5-604, Mure, Mitaka, Tokyo 181-0002. North American agent: Peggy Rae Sapienza, Nippon 2007, PO Box 314, Annapolis Junction, MD 20701, USA. UK agent: Andrew A. Adams, 23 Ivydene Road, Reading RG30 1HT, England, U.K. European agent: Vincent Doherty, Koninginnegracht 75a, 2514A Den Haag, Netherlands. Australian agent: Craig Macbride, Box 274, World Trade Centre, Victoria, 8005 Australia. ■

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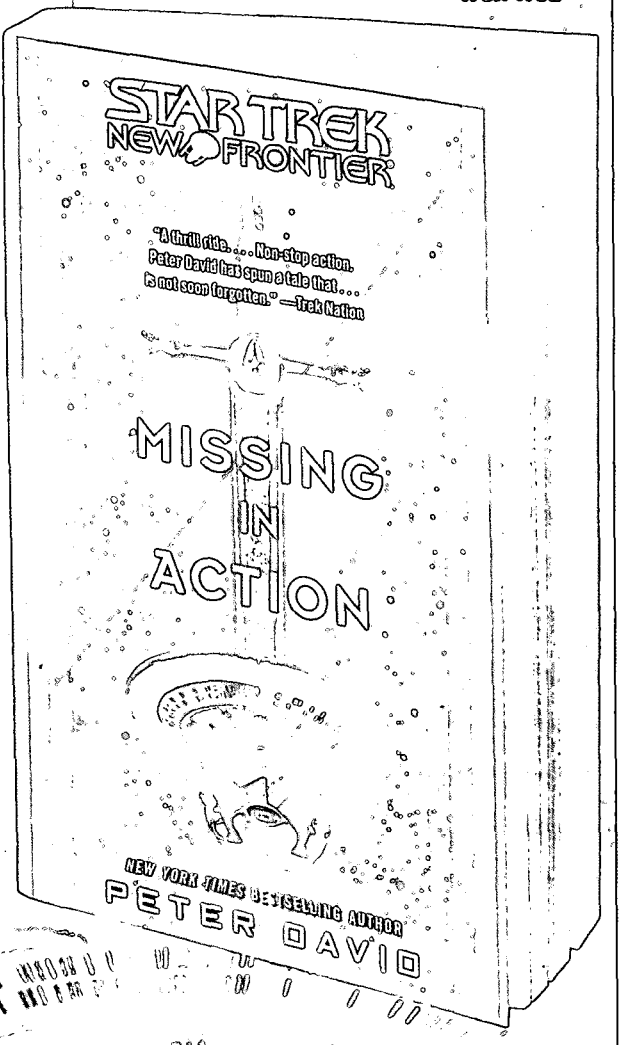
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